

DRAFT
LEARNING FRAMEWORK
CLASSES 11-12
GEOGRAPHY



CO-CREATED BY CBSE-
CENTRE FOR EXCELLENCE IN ASSESSMENT IN COLLABORATION
WITH EDUCATIONAL INITIATIVES



The vision of the National Education Policy (NEP) 2020 released by the Government of India, directs that children not only learn, but more importantly learn how to learn. Education, must move towards less content, and more towards learning about how to think critically and solve problems, how to be creative and multidisciplinary, and how to innovate, adapt, and absorb new material in novel and changing fields. Pedagogy must evolve to make education more experiential, holistic, integrated, inquiry-driven, discovery-oriented, learner-centered, discussion-based, flexible, and, of course, enjoyable. The policy has a clear mandate for competency-based education (CBE) to enhance acquisition of critical 21st century skills by the learners. The first determinant for implementing CBE is a curriculum which is aligned to defined learning outcomes and that clearly states the indicators to be achieved.

The Central Board of Secondary Education (CBSE) has collaborated with Educational Initiatives, to develop the Learning Framework for English, Hindi, Mathematics, Physics, Chemistry, Biology, History, Geography, Economics, Accountancy, Business Studies and Computer Science in Grade 11 and 12. The Learning Frameworks comprise explicitly stated knowledge, skills and dispositions that an education system should try to achieve. These frameworks would help develop a common shared understanding among teachers, students and other stakeholders and would serve as a common benchmark for teaching, learning and assessment across the country.

These frameworks present indicators that are aligned to the CBSE curriculum and the NCERT learning outcomes. They further outline samples of pedagogical processes and assessment strategies to encourage curiosity, objectivity, creativity with a view to nurture scientific temper. This framework would be a key resource for teachers as they execute the curriculum. They have been developed to ensure that teachers align the learning to meet the set quality standards and also use it to track learning levels of students. The effort has been to synchronize focus on quality education with uniformity in quality of standards across CBSE schools.

We hope, these frameworks would not only become a reference point for competency-based education across the country but also facilitate planning and design of teaching-learning processes and assessment strategies by teachers and other stakeholders.

Any feedback regarding the framework is welcomed.

CBSE Academic Unit

The National Education Policy 2020 has outlined the importance of competency-based education in classrooms, leading to curricular and pedagogical reforms in the school systems. The policy emphasizes on the development of higher order skills such as analysis, critical thinking and problem solving through classroom instructions and aligned assessments. These skills are important indicators which will further the dissemination of pedagogy and learning outcomes across schools and boards.

In order to propagate indicator-based learning through 'Learning Frameworks', the Central Board of Secondary Education has collaborated with Educational Initiatives (Ei). Learning frameworks are a comprehensive package which provides learning outcomes, indicators, assessment frameworks, samples of pedagogical processes, tools and techniques for formative assessment, blueprint, assessment items and rubrics. 12 such frameworks have been developed for English, Hindi, Mathematics, Physics, Chemistry, Biology, History, Geography, Economics, Accountancy, Business Studies and Computer Science in Grade 11 and 12.

The frameworks are adopted from the learning outcomes outlined in the NCERT which are mapped to key concepts of the content. These content domain specific learning outcomes are broken down into indicators which defines the specific skills a learner needs to attain. A clear understanding of these LOs will be immensely helpful for teachers and students to learn better. This document will help teachers to focus on skills of the subject in addition to concepts.

As per the National Focus group Position paper on Teaching of Social Sciences at the senior secondary stage (4.4), "the objectives of the social science courses at this stage may be to assist students to explore their interests and aptitudes in order to choose appropriate university courses and/or careers, to encourage them to explore higher levels of knowledge in different disciplines, to promote problem-solving abilities and creative thinking in the citizens of tomorrow, to introduce students to different ways of collecting and processing data and information in specific disciplines, and help them arrive at conclusions, and to generate new insights and knowledge in the process." As per NCERT Learning Outcomes for Higher Secondary Stage, "Being an entry point for the higher education, students choose geography for pursuing their academic interest and, therefore, need a broader and deeper understanding of the subject. Its contributions lie in the content, cognitive processes, skills and values that geography promotes and thus helps the students explore, understand and evaluate the environmental and social dimensions of the world in a better manner. At this stage learners are expected to apply geographical knowledge and methods of inquiry to new situations or problems at different levels — local/regional, national and global, utilize geographical knowledge in understanding issues concerning the community such as environmental issues, socio-economic concerns, gender and become responsible and effective member of the community"

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2. NATURE OF THE SUBJECT

Geography is introduced as an elective subject at the higher secondary stage. After ten years of general education, students branch out at the beginning of this stage and are exposed to the rigours of the discipline for the first time. Being an entry point for the higher education, students choose geography for pursuing their academic interest and, therefore, need a broader and deeper understanding of the subject. For others, geographical knowledge is useful in daily lives because it is a valuable medium for the education of young people. Its contributions lie in the content, cognitive processes, skills and values that geography promotes and thus helps the students explore, understand and evaluate the environmental and social dimensions of the world in a better manner.

Since geography explores the relationship between people and their environment, it includes studies of physical and human environments and their interactions at different scales — local, state/region, nation and the world. The fundamental principles responsible for the varieties in the distributional pattern of physical and human features and phenomena over the earth's surface need to be understood properly. Application of these principles are taken up through selected case studies from the world and India. Thus, the physical and human environment of India and study of some issues from a geographical point of view have been covered in greater detail. Students are exposed to different methods used in geographical investigations.

3. STAGE SPECIFIC CURRICULAR EXPECTATIONS

Learning Outcomes at Higher Secondary stage developed by National Council for Educational Research and Training (NCERT) mentions the following curricular expectations for Geography.

- CE1. Explain the terms, key concepts and basic principles of geography
- CE2. Search for, recognise and understand the processes and patterns of the spatial arrangement of the natural as well as human features and phenomena on the earth's surface
- CE3. Understand and analyze the inter-relationship between physical and human environments and their impact
- CE4. Apply geographical knowledge and methods of inquiry to new situations or problems at different levels — local/regional, national and global
- CE5. Develop geographical skills, relating to collection, processing and analysis of data/information and preparation of report including maps and graphics and use of computers wherever possible
- CE6. Develop Geospatial skills i.e., Remote Sensing (RS), Geographical Information System (GIS) and Global Navigation Satellite System (GNSS) to understand and analyze various geographical concerns
- CE7. Utilize geographical knowledge in understanding issues concerning the community such as environmental issues, socio-economic concerns, gender and become responsible and effective member of the community

4. CONTENT DOMAINS

The content for Geography for grades 11-12 in CBSE curriculum has been organized around content units.

Content units for the two grades, along with the chapters from the NCERT textbooks are mentioned in the tables below.

Table I. Grade 11 Content units and textbook chapters

Content units	NCERT textbook chapters
Fundamentals of Physical Geography	
I. Geography as a Discipline	1. Geography as a discipline
II. The Earth	2. The Origin and Evolution of the Earth
	3. Interior of the Earth
	4. Distribution of Oceans and Continents
III. Landforms	5. Geomorphic Processes
	6. Landforms and their Evolution
IV. Climate	7. Composition and Structure of Atmosphere
	8. Solar Radiation, Heat Balance and Temperature
	9. Atmospheric Circulation and Weather Systems
	10. Water in the Atmosphere
	11. World Climate and Climate Change
V. Water (Oceans)	12. Water (Oceans)
	13. Movements of Ocean Water

VI. Life on the Earth	14. Biodiversity and Conservation
India-Physical Environment	
I. Introduction	1. India — Location
II. Physiography	2. Structure and Physiography
	3. Drainage System
III. Climate, Vegetation and Soil	4. Climate
	5. Natural Vegetation
IV. Natural Hazards and Disasters: Causes, Consequences and Management	6. Natural Hazards and Disasters
Practical Work in Geography	
I. Fundamentals of Maps	1. Introduction to Maps
	2. Map Scale
	3. Latitude, Longitude and Time
	4. Map Projections
II. Topographic and Weather Maps	5. Topographical Maps
	6. Introduction To Remote Sensing

Table II. Grade 12 Content units and textbook chapters

Content units	NCERT textbook chapters
Fundamentals of Human Geography	
I. Human Geography	1. Human Geography
II. People	2. The World Population: Distribution, Density and Growth
	3. Human Development
III. Human Activities	4. Primary Activities
	5. Secondary Activities
	6. Tertiary and Quaternary Activities
IV. Transport, Communication and Trade	7. Transport and Communication
	8. International Trade
India. People and Economy	
VI. People	1. Population: Distribution, Density, Growth and Composition
VII. Human Settlements	2. Human Settlements
VIII. Resources and Development	3. Land Resources and Agriculture
	4. Water Resources
	5. Mineral and Energy Resources
	6. Planning and Sustainable Development in Indian Context
IX. Transport, Communication and International Trade	7. Transport and Communication
	8. International Trade
X. Geographical Perspective on selected issues and problems	9. Geographical Perspective on Selected Issues and Problems
Practical Work in Geography Part II	
I. Processing of Data and Thematic Mapping	1. Data – Its Source and Compilation
	2. Data Processing

	3. Graphical Representation of Data
II. Spatial Information Technology	4. Spatial Information Technology

5. SUBJECT SPECIFIC COGNITIVE DOMAINS

“As the Board is progressively allowing more space to 'learning outcome based' assessment in place of textbook driven assessment, question papers of Board examinations will have more questions based on real-life situations requiring students to apply, analyse, evaluate and synthesize information as per the stipulated outcomes. The core-competencies to be assessed in all questions, however, will be from the prescribed syllabus and textbooks recommended therein. This will eliminate predictability and rote learning to a large extent.”
[CBSE Curriculum for classes 11-12]

CATEGORIES OF COGNITIVE DOMAINS

Revised Bloom’s taxonomy (Anderson and Krathwohl, 2001) of cognitive process dimension has six categories, each associated with a set of specific cognitive processes. CBSE curriculum intends to have a balance of these categories of intellectual tasks in the teaching-learning and assessment of learning of a subject. These six categories as described in the revised Bloom’s taxonomy, with their specific cognitive processes, are mentioned below.

COGNITIVE DOMAIN – REMEMBER

‘Remember’ involves retrieving relevant knowledge from long-term memory. **Recognising** and **recalling** are the specific cognitive skills associated with this cognitive domain. Asking students to provide definition of a concept, e.g. Name two forest-based industries in India.

COGNITIVE DOMAIN – UNDERSTAND

‘Understand’ involves ‘constructing meaning from instructional messages, including oral, written and graphic communication’. **Interpreting, exemplifying, classifying, summarizing, inferring, comparing, explaining** are the specific cognitive skills associated with this cognitive domain. Asking students to explain a phenomenon in terms of physical concepts/principles, e.g. Explain the factors that support the development of industries in and around Kolkata.

COGNITIVE DOMAIN – APPLY

'Apply' involves carrying out or using a procedure in a given situation. **Executing** and **implementing** are the specific cognitive skills associated with this cognitive domain. Assessment tasks wherein students have to use the knowledge and/or procedures to solve a problem or to arrive at a decision in a given real-life situation cover this cognitive domain, e.g. Based on your understanding of raw material sources of the iron and steel industry, mark two areas that most likely have coalfields and two that most likely have iron ore mines on a map of India.

COGNITIVE DOMAIN – ANALYZE

'Analyze' involves breaking material into constituent parts and determining how parts relate to one another and to an overall structure and purpose. **Differentiating, organising** and **attributing** are the specific cognitive skills associated with this cognitive domain. Asking students to compare and explain the relationship between two physical quantities from the same content domain, e.g. India has widespread deposits of the non-metallic mineral, mica. Analyze how the availability of this mineral has contributed to the growth of knowledge-based industries in India.

COGNITIVE DOMAIN – EVALUATE

'Evaluate' involves making judgments based on criteria and standards. **Checking** and **critiquing** are the specific cognitive skills associated with this cognitive domain. Assessment tasks that require a deeper level of understanding wherein students are required to provide justification for their choice, e.g. As a result of the New Industrial Policy of 1991, highway construction and management was thrown open to private companies. Evaluate the consequences of this policy on sustainable development of the country.

COGNITIVE DOMAIN – CREATE

'Create' involves putting elements together to form a coherent or functional whole; or reorganising elements into a new pattern or structure. **Generating, planning** and **producing** are the specific cognitive skills associated with this cognitive domain. Tasks that require students to produce new artefacts based on what they have learnt, e.g. Today, knowledge-based industries are concentrated in large cities of India, specifically Bengaluru and Gurugram. Create an outline of a plan to promote the growth of the knowledge-based industry in smaller cities and towns of India. (For example, a pre-requisite of this is easy access to high quality education.)

KINDS OF ASSESSMENT TASKS FOR DIFFERENT COGNITIVE DOMAINS

Some more examples of kinds of assessment tasks that can be associated with the different cognitive domains are given below. The following list should be taken as an indicative not an exhaustive one.

Table III. Cognitive Domains and assessment tasks

Cognitive domain	Assessment tasks
Remember <ul style="list-style-type: none"> recognising recalling 	<ul style="list-style-type: none"> recognising regions/places on maps recalling the type of climate experienced/vegetation found in a particular area listing the features of different layers of atmosphere column
Understand <ul style="list-style-type: none"> interpreting exemplifying classifying summarizing inferring comparing explaining 	<ul style="list-style-type: none"> interpreting a case study to understand effects of geographical features and policies on life in a region providing examples of animal and plant adaptations to grow and survive in a particular climate type classifying a given list of industries into categories based on their raw material/size/ownership summarizing how partition affected the industrial development of India inferring advantages to a particular region due to its geographical features comparing the physiography of the Northern Plains and the Peninsular Plateau explaining features of different types of transport in India
Apply <ul style="list-style-type: none"> executing implementing 	<ul style="list-style-type: none"> applying their understanding of climate and soil type of a region to identify the type of vegetation found there applying their understanding of geographical features to mark regions where specific crops can be grown
Analyze <ul style="list-style-type: none"> differentiating organising attributing 	<ul style="list-style-type: none"> analysing the climatic conditions that lead to the growth of different types of forests, like tropical evergreen and tropical deciduous differentiating between renewable and non-renewable sources of energy organising information about concepts like forest types, industry types or mineral types in a graphic organiser analysing a data table showing trends of import and export
Evaluate <ul style="list-style-type: none"> checking critiquing 	<ul style="list-style-type: none"> critiquing the consequences of policies on environment, culture and economy evaluating the impact of a particular type of industry on the development of the country
Create <ul style="list-style-type: none"> generating 	<ul style="list-style-type: none"> creating a proposal to ensure sustainable development of your city planning disaster management strategies for a particular natural disaster

- planning
- producing

SAMPLE TASKS FROM DIFFERENT COGNITIVE DOMAINS SPECIFIC TO A CONTENT UNIT

Some specific examples of tasks from different cognitive domains are described below for two content chapters from classes 11 and 12 NCERT Geography textbooks. A chapter may not always cover all six cognitive domains. The following list of tasks should be taken as an indicative list not a comprehensive one.

CHAPTER 6 – CLASS 11

Table IV: Chapter 6. Composition and Structure of Atmosphere – Class:11

Cognitive domain	Sample tasks
Remember	<ul style="list-style-type: none"> • What is the atmosphere of Earth composed of? • What are the different layers of the column of atmosphere?
Understand	<ul style="list-style-type: none"> • Explain the characteristics of stratosphere layer of the atmosphere. • There is great variation in the density and temperature with different layers of atmosphere. Explain two reasons for this variation.
Apply	<ul style="list-style-type: none"> • Layer A of the atmosphere reflects the transmitted radio waves back to the earth. Layer B of the atmosphere absorbs ultra-violet radiation. Name layer A and B and explain how does the temperature vary in each layer with height.
Analyze	<ul style="list-style-type: none"> • Analyze why there is a higher concentration of dust particles in subtropical and temperate regions. • Analyze how water vapour allows the earth neither to become too cold nor too hot.
Evaluate	<ul style="list-style-type: none"> • Evaluate the following claim: Water vapour contributes to the stability and instability in the air.
Create	<ul style="list-style-type: none"> • ‘Worldwide, net emissions of greenhouse gases of the atmosphere from human activities increased by 43 percent from 1990 to 2015.’ Create a social media campaign to build awareness about this issue and encourage action.

Table V: Chapter 5. Mineral and Energy Resources – Class:12

Cognitive domain	Sample tasks
Remember	<ul style="list-style-type: none"> • What are the main raw materials for conventional sources of energy? • Name three raw materials of minerals for cement industry.
Understand	<ul style="list-style-type: none"> • Explain why copper is an important metal in the electrical industry. • How do you think lesser availability of coal an affect the production in thermal power station and iron and steel industry?
Apply	<ul style="list-style-type: none"> • If you were a business owner, would you set up an aluminium manufacturing factory in Sambalpur, Odisha? Support your choice with reasons.
Analyze	<ul style="list-style-type: none"> • Classify the given mineral resources based on chemical and physical properties: Natural gases, Mica, Iron, Limestone, Graphite, Coal, Manganese, Petroleum, Copper, Bauxite. • Why mineral resources are necessary for industrial development of the country? Write your analysis in 250 – 300 words.
Evaluate	<ul style="list-style-type: none"> • Provide your evaluation of how the solar energy is more effective than coal or oil-based plants and nuclear plants.
Create	<ul style="list-style-type: none"> • Plan the outline of policy measures for sustainable development with the protection of mineral resources for the future generations in the country • Suggest three reasons for why switching to non-conventional source from conventional sources of energy is viable in recent times.

6. LEARNING OUTCOMES

“Competency based Learning focuses on the student’s demonstration of desired learning outcomes as central to the learning process. Learning outcomes are statements of abilities that are expected students will gain as a result of learning the activity. Learning outcomes are, thus, statements of what a learner is expected to know, understand and/or be able to demonstrate after completion of a process of learning. Therefore, the focus is on measuring learning through attainment of prescribed learning outcomes, rather than on measuring time.”
[Senior School Curriculum, CBSE]

Following learning outcomes for senior secondary stage developed by National Council for Educational Research and Training (NCERT) state important knowledge, skills and dispositions students need to attain at the end of an academic year in classes 11 and 12 in the context of learning Geography.

CLASS 11 LEARNING OUTCOMES FOR GEOGRAPHY

- (1) **Explains nature of Geography and its importance**
- (2) **Draws inter-linkages of physical geography with other disciplines**
- (3) **Identifies natural features, and phenomena, on the earth surface and on maps and diagrams**, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.
- (4) **Classifies processes which bring changes on the earth surface** i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.
- (5) **Distinguishes between natural phenomena and processes on the basis of their characteristics** e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone
- (6) **Shows spatial distribution of natural features and phenomena on the map** e.g., relief, earthquake, ocean currents, climates, etc.
- (7) **Describes technical terms and theories related to origin of the universe and earth**, continental drift theory, plate tectonic, climatic regions, etc.
- (8) **Demonstrates through models or diagrams** e.g., interior of the earth, structure of the atmosphere, hydrological cycle, movement of Plates, drainage patterns, etc.
- (9) **Justifies importance of biodiversity** by giving examples of flora and fauna from local to global
- (10) **Represents geographical information in suitable forms** e.g., maps, diagrams, graphs, table, etc.
- (11) **Demonstrates Geospatial skills (RS, GIS, and GNSS) as well as interprets Topographic sheets, Weather maps, etc.**
- (12) **Illustrates decision making and problem-solving skills**, e.g., initiatives at local level to minimize environmental pollution, mitigation of natural hazards and disasters and combat climate change.

CLASS 12 LEARNING OUTCOMES FOR GEOGRAPHY

- (1) **Explains nature of human geography** and its importance
- (2) **Draws interlinkages of Human Geography with other disciplines**
- (3) **Analyzes the interrelationship between physical and human environment** and their impact from local to global
- (4) **Recognise spatial pattern** of natural and human phenomena
- (5) **Compare and contrast** various economic activities, trade, population, settlement, transport etc.
- (6) **Describe technical terms and theories** related to population, Human Development Index etc.
- (7) **Explain cause and effect relationship on human environment** interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.
- (8) **Calculate statistical data and represent data in the suitable form** e.g., map, diagram, table etc.
- (9) **Exhibits map skills by drawing** manually or digitally such as location, interpretation and analysis
- (10) **Demonstrates Geospatial Skills (RS, GIS, GNSS) for geographical studies at Global/Regional/Local level**
- (11) **Exhibit problem solving and decision-making ability** e.g., environmental and socio-economic issues

7. CONTENT DOMAIN SPECIFIC LEARNING OUTCOMES AND COMPETENCIES

The learning outcomes defined by NCERT are generic and broadly defined for the content defined in the curriculum. They articulate the discipline-specific skills that students need to attain through learning different concepts in the syllabus. A clear understanding of the scope of these learning outcomes for each concept dealt in the NCERT textbook chapters will be very helpful for both teachers and students in planning teaching and learning better. The following process has been followed to list out the content domain specific learning outcomes (CLOs) and competencies for all the content units and textbook chapters.

Concepts discussed in the textbook chapters were mapped to key concepts under each content domain in the CBSE syllabus.

Relevant NCERT learning outcomes were identified for each key concept in the chapter.

Content domain specific learning outcomes (CLO) were defined for the NCERT learning outcomes relevant for the chapter. The cognitive process in the NCERT learning outcome and the CLO is the same.

Each CLO was broken down into specific learning indicators called as 'competency' which defines the specific skill or knowledge that a student needs to attain. The cognitive process addressed in competencies may be same or lower than the cognitive process addressed in CLO.

CLASS 11 CONTENT DOMAIN SPECIFIC LEARNING OUTCOMES AND COMPETENCIES

Table VI: Content domain specific learning outcomes and competencies - Class:11

Unit and chapter	Key concept	NCERT Learning Outcomes (LOs)	Content domain specific Learning Outcomes (CLOs)	Competencies
Fundamentals of Physical Geography				
I. Geography as a Discipline 1. Geography as a Discipline	Introduction to Geography as a Discipline	LO1. Explains nature of Geography and its importance	CLO1. Describes the attributes of geography	C1. Analyzes the importance of geography.
		LO1. Explains nature of Geography and its importance	CLO1. Describes the attributes of geography	C2. Explains how geographers work.
	Geography as an Integrating Discipline	LO2. Draws inter-linkages of physical geography with other disciplines	CLO2. Describes the integrated nature of geography	C3. Identifies the linkages of geography with different natural and social sciences.
	Field of Geography	LO1. Explains nature of Geography and its importance	CLO3. Analyzes the different fields of geography	C4. Describes the various fields of geography and their features.
	Branches of Geography	LO1. Explains nature of Geography and its importance	CLO4. Analyzes the three branches of geography	C5. Describes systematic and regional approaches to studying geography.
		LO1. Explains nature of Geography and its importance	CLO4. Analyzes the three branches of geography	C6. Describes branches of geography based on systematic and regional approach.

	Physical Geography and its Importance	LO1. Explains nature of Geography and its importance	CL05. Describes nature and importance of physical geography	C7. Analyzes the importance of elements of physical Geography to human beings and for sustainable development.
II. The Earth 2. The Origin and Evolution of the Earth	Early Theories- Origin of The Earth	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL06. Explains and analyzes early theories related to the origin of the universe	C8. Analyzes the arguments under Nebular Hypothesis and Binary Theories.
	Origin of The Universe	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL07. Analyzes the modern theories related to the origin of the universe	C9. Explains the stages of the Big Bang Theory and justifies why the scientific community favours it as a theory of the origin of the universe.
	Formation of Stars and Planets	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL08. Explains the process of formation of important celestial bodies	C10. Explains the process of star formation and the stages in the development of planets.
	Evolution of The Earth	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL09. Explains the evolution of the planet earth	C11. Compares and contrasts the past structure of the earth as against the present one.
	Evolution of Lithosphere, Atmosphere and Hydrosphere	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL010. Explains the evolution of lithosphere, atmosphere and hydrosphere	C12. Infers the process of the development of the layered structure of the earth.
		LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL010. Explains the evolution of lithosphere, atmosphere and hydrosphere	C13. Explains the three stages in the evolution of the present atmosphere.

		LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO10. Explains the evolution of lithosphere, atmosphere and hydrosphere	C14. Explains the events of evolution of the present oceans.
	Origin of Life	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO11. Explains the origin and evolution of life of on Earth	C15. Articulates the evolution of life from unicellular bacteria to the modern man as given in the geological time.
II. The Earth 3. Interior of the Earth	Exogenous and Endogenous Processes	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO12. Classifies processes which bring changes on the earth's landscape – endogenic and exogenic.	C16. Articulates the role of exogenic and endogenic processes in shaping the landscape.
	Physiography of the Earth and the Human Life	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO13. Identifies natural features of the Earth's landscape that influence the human life	C17. Rationalises the effects of physiography of the region on human life.
	Sources of Information about the Interior	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO14. Explains how to study the Earth's interior	C18. Analyzes the direct and indirect sources of information about the interior of the Earth.
		LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO14. Explains how to study the Earth's interior	C19. Describes technical terms and theories related to physiography.

Earthquake	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO15. Describes the concept of earthquakes	C20. Defines terms related to earthquakes and explains the process of occurrence of earthquakes.
Earthquake Waves	LO5. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CLO15. Analyzes the concept of earthquake waves	C21. Explains the different types of earthquake waves, the process of their propagation, and shadow zones.
Types of Earthquakes	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO16. Compares the types of earthquakes	C22. Explains the types of earthquakes – tectonic, volcanic, collapse, explosion and induced earthquakes.
Measuring Earthquakes	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO17. Explains the tools used to measure impact of the earthquake	C23. Defines Richter Scale and evaluates the use of Intensity Scale in measuring earthquakes.
Effects and Frequency of Earthquake Occurrence	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO18. Analyzes causes and consequences of earthquakes	C24. Explains the effects and frequency of earthquakes.

	Structure of the Earth	LO8. Demonstrates through models or diagrams e.g., interior of the earth, structure of the atmosphere, hydrological cycle, movement of Plates, drainage patterns, etc.	CLO19. Describes the structure of the interior of the Earth	C25. Explains the crust, mantle and core of the interior of the Earth.
	Volcanoes and their Types	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO20. Analyzes volcanoes and their nature	C26. Explains and classifies the different types of volcanoes and volcanic landforms.
II. The Earth 4. Distribution of Oceans and Continents	Oceans and Continents	LO6. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CLO21. Summarizes the distribution of oceans & continents on the Earth.	C27. Names the oceans and continents on the Earth and explains their distribution.
	Continental Drift	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO22. Explains processes and theories of continental drift	C28. Describes the continental drift and evidence in its support.
		LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO22. Explains processes and theories of continental drift	C29. Explains the theory of continental drift by Wegener.
	Post-drift Studies	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO23. Summarises the conclusions of the post-drift studies	C30. Explains conventional current theory and summarises the mapping of the ocean floor.

Ocean Floor Configuration	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO24. Describes the role and divisions of the ocean floor configuration.	C31. Explains how the ocean floor configuration helps us in the understanding of the distribution of continents and oceans.
	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO24. Describes the role and divisions of the ocean floor configuration.	C32. Determines and describes features of the three major divisions of ocean floor based on the depth as well as the forms of relief.
Distribution of Earthquakes and Volcanoes	LO5. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CLO25. Summarises the distribution of earthquakes and volcanoes.	C33. Identifies the distribution of earthquakes and volcanoes in various parts of India, based on evidence.
Concept of Sea Floor Spreading	LO8. Demonstrates through models or diagrams e.g., interior of the earth, structure of the atmosphere, hydrological cycle, movement of Plates, drainage patterns, etc.	CLO26. Describes the facts revealed by the studies of ocean floor	C34. Explains 'Sea Floor Spreading' and visually represents the theory.
Plate Tectonics	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO27. Explains the process of plates tectonics	C35. Explains and categorises different major and minor continental plates and types of plate boundaries.
	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO28. Describes the rates of plate movement and states the forces responsible for the movement of plates	C36. States earth's two major sources of heat and explains the cause for the plate movement.

	Movement of the Indian Plate	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL029. Explains plate tectonics in context of India.	C37. Summarizes the movement of the Indian Plate.
III. Landforms 5. Geomorphic Processes	Earth's interior	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CL030. Explains the processes that brings changes on the earth's surface	C38. Describes endogenic and exogenic forces as well as their results.
	Geomorphic Processes	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL031. Describes geomorphic process and geomorphic agents	C39. Differentiates between endogenic and exogenic geomorphic processes and analyzes the importance of geomorphic agents such as gravity.
	Endogenic Processes	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL032. Describes endogenic processes	C40. Summarises the energy generating within the earth as the main force behind endogenic geomorphic processes.
	Diastrophism	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL033. Describes the features of diastrophism	C41. Defines diastrophism and analyzes what it entails.
	Volcanism	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL034. Describes the features of volcanism	C42. Defines volcanism and differentiates it from volcanoes.

Exogenic Processes	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO35. Describes exogenic processes	C43. Explains features of exogenic processes and summarises the factors that influence exogenic processes.
Weathering	LO5. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CLO36. Explains weathering and factors that influence it.	C44. Describes chemical weathering, physical weathering and biological weathering as well as the role of weathering.
Mass Movements	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO37. Explains mass movements and the factors influence them	C45. Determines the factors that lead to mass movements and classifies mass movements into slow movements and rapid movements.
Landslides	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO38. Explains landslides and factors that cause them	C46. Summarises that the nature of discontinuities in the rock, the degree of weathering and the steepness of the slope affect the land mass movement.
	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO39. Explains landslides and factors that cause them	C47. Differentiates between debris slide and rockslide.
Erosion and Deposition	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO40. Describes the process of erosion and deposition	C48. Summarises the process of erosion, its role in weathering, and deposition as the consequence of erosion.

	Soil Formation	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL041. Summarises soil and process of its formation	C49. Explains the process of soil formation and the role of various soil-forming factors.
III. Landforms 6. Landforms and their Evolution	Landforms	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL042. Summarises the geomorphic processes that cause the evolution of landforms	C50. Analyzes the factors that lead to the modification of the landforms and identifies the three stages of landmass development.
	Running Water	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL043. Explains the role of running water in erosion	C51. Analyzes how different flows of running water cause erosion.
		LO5. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CL044. Describes the different stages of streams	C52. Summarizes the main characteristics of young, mature and old stages of streams.
	Erosional Landforms	LO5. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CL045. Describes various erosional landforms	C53. Explains different types of valleys, potholes & plunge pools, incised or entrenched meanders, and river terraces.
	Depositional Landforms	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks,	CL046. Describes various depositional landforms	C54. Describes features of alluvial fans, deltas, floodplains, natural levees, point bars, and meanders

		climate, drainage, ocean floor configuration, etc.		
	Groundwater	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL047. Analyzes the role of groundwater in erosion	C55. Summarizes the contribution of groundwater in the erosion of landmasses and evolution of landforms.
	Erosional Landforms	LO5. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CL048. Explains erosional and depositional landforms	C56. Describes the features of glacial valleys, river valleys, river alluvial plains, glacial outwash plains, glacial till and alluvium, high rocky coast, low sedimentary coast, and sand dunes.
		LO5. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CL048. Explains erosional and depositional landforms	C57. Explains causes of erosion.
IV. Climate 7. Composition and Structure of Atmosphere	Atmosphere and its Composition	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL049. Summarizes the meaning of 'atmosphere'.	C58. Defines 'atmosphere' and explains what it is composed of.
		LO5. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CL050. Explains the role of the various components of the atmosphere	C59. Summarises the roles of gases, water vapour and dust particles in the atmosphere.

	Structure of The Atmosphere	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL051. Describes the different layers of atmosphere	C60. Describes troposphere and tropopause; stratosphere; mesosphere and mesopause; ionosphere; thermosphere; and exosphere.
	Elements of Weather & Climate	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL052. Explains the elements of the atmosphere	C61. Determines the main elements of the atmosphere which are subject to change, and which influence human life on earth.
IV. Climate 8. Solar Radiation, Heat Balance and Temperature	Distribution of Heat on Earth	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL053. Evaluates the distribution of heat on Earth	C62. Infers why the amount of heat received by different parts of Earth is not the same.
	Solar Radiation	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL054. Explains the effects of variations in solar output of the Earth	C63. Determines the factors that cause variations in insolation and rationalizes why variation in the solar output does not have a great effect on daily weather changes on the surface of Earth.
	The Passage of Solar Radiation through the Atmosphere	LO6. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL055. Evaluates the process of spatial distribution of incident solar radiation on Earth's surface	C64. Analyzes how the process of solar radiation adds colour to the sky and the spatial distribution of insolation at the earth's surface.
	Heating and Cooling of Atmosphere	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL056. Explains conduction, convection and advection	C65. Compares the process of conduction, convection and advection.

Terrestrial Radiation	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL057. Describes terrestrial radiation	C66. Explains the process of terrestrial radiation.
Heat Budget of the Planet Earth	LO6. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL058. Evaluates the different ways of heating and cooling of the atmosphere.	C67. Summarizes the role of earth's radiation in heating the atmosphere and explains why the earth neither warms up nor cools down despite the huge transfer of heat that takes place.
Temperature	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL059. Describes temperature and factors that affect it	C68. Defines 'temperature' and determines the factors controlling temperature distribution.
	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL060. Summarises the pattern of temperature variation on Earth	C69. Analyzes the role of latitude, altitude and distance from sea in influencing temperature.
	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL061. Enlists the different factors that affect the temperature	C70. Rationalizes how air masses and ocean currents affect temperature.
	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL062. Explains 'Inversion of Temperature'	C71. Analyzes how the temperature decreases with increase in elevation and defines 'normal lapse rate'.

		LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO63. Explains air drainage	C72. Describes the process of 'air drainage'.
IV. Climate 9. Atmospheric Circulation and Weather Systems	Atmospheric Pressure	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO64. Describes the variations in atmospheric pressure on Earth	C73. Determines the reason behind the variations in the atmospheric pressure and recognizes the variations in atmospheric pressure at different elevation levels.
		LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO64. Describes the variations in atmospheric pressure on Earth	C74. Summarizes vertical variation and horizontal distribution of pressure.
	World Distribution of Sea Level Pressure	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO65. Explains concepts related to the world distribution of sea level pressure	C75. Explains equatorial lows, subtropical highs, polar lows, and polar highs.
		LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO65. Explains concepts related to the world distribution of sea level pressure	C76. Evaluates the forces acting on velocity and direction of wind.
		LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO65. Explains concepts related to the world distribution of sea level pressure	C77. Explains pressure gradient force, frictional force, and Coriolis force.

	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO65. Explains concepts related to the world distribution of sea level pressure	C78. Describes the role of pressure and wind.
General Circulation of the Atmosphere	LO8. Demonstrates through models or diagrams e.g., interior of the earth, structure of the atmosphere, hydrological cycle, movement of Plates, drainage patterns, etc.	CLO66. Explains concepts related to the general circulation of the atmosphere	C79. Summarises the general circulation of the atmosphere
	LO8. Demonstrates through models or diagrams e.g., interior of the earth, structure of the atmosphere, hydrological cycle, movement of Plates, drainage patterns, etc.	CLO66. Explains concepts related to the general circulation of the atmosphere	C80. Analyzes general atmospheric circulation and its effects on oceans.
	LO8. Demonstrates through models or diagrams e.g., interior of the earth, structure of the atmosphere, hydrological cycle, movement of Plates, drainage patterns, etc.	CLO66. Explains concepts related to the general circulation of the atmosphere	C81. Explains various types of winds
	LO8. Demonstrates through models or diagrams e.g., interior of the earth, structure of the atmosphere, hydrological cycle, movement of Plates, drainage patterns, etc.	CLO66. Explains concepts related to the general circulation of the atmosphere	C82. Describes air masses and fronts.
	LO8. Demonstrates through models or diagrams e.g., interior of the earth, structure of the atmosphere, hydrological cycle, movement of Plates, drainage patterns, etc.	CLO66. Explains concepts related to the general circulation of the atmosphere	C83. Analyzes the role of tropical and extra tropical cyclones.

		LO8. Demonstrates through models or diagrams e.g., interior of the earth, structure of the atmosphere, hydrological cycle, movement of Plates, drainage patterns, etc.	CLO66. Explains concepts related to the general circulation of the atmosphere	C84. Describes the causes of thunderstorms and tornadoes.
IV. Climate 10. Water in the Atmosphere	Water vapour in Air	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO67. Summarises the water vapour in air	C85. Explains the role of water vapour in weather phenomena and defines concepts of absolute humidity, relative humidity, and dew point.
	Evaporation and Condensation	LO2. Draws inter-linkages of physical geography with other disciplines	CLO68. Explains evaporation and condensation	C86. Describes the process of evaporation and condensation, and defines related terms.
	Dew	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO69. Elaborates on various natural phenomena occurring due to presence of water in the atmosphere	C87. Describes the process of formation of dew, frost, fog and mist.
	Clouds	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO70. Describes the types of clouds	C88. Explains process of formation and features of cirrus clouds, cumulus clouds, stratus clouds, and nimbus clouds.
		LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO70. Describes the types of clouds	C89. Classifies high, medium, low clouds and clouds with extensive vertical development formed because of combination of four basic types of clouds.

	Precipitation	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL071. Explains the meaning of precipitation	C90. Summarises the process of precipitation and formation of rainfall, snowfall, sleet and hailstones.
		LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL072. Differentiates the types of rainfall	C91. Describes convectional rainfall, orographic rainfall, and cyclonic rainfall.
		LO6. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL073. Summarises the world distribution of rainfall based on distance from equator and annual precipitation	C92. Analyzes the world distribution of rainfall based on distance of the poles from the equator and the total amount of annual precipitation.
IV. Climate 11. World Climate and Climate Change	Climate	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CL074. Classifies climate into different approaches	C93. Defines three broad approaches that have been adopted for classifying climate – Empirical Classification, Genetic Classification, and Applied Classification.
		LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL075. Classifies climate based on various schemes by Koeppen's scheme	C94. Explains the characteristics of the climatic groups and types as determined by Koeppen.
		LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CL076. Describes various climates and their groups/types	C95. Describes tropical climates and its groups.

Koeppen's Scheme of Classification of Climate	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CL076. Describes various climates and their groups/types	C96. Describes dry climate and its groups.
	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CL076. Describes various climates and their groups/types	C97. Describes warm temperature and its groups.
	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CL076. Describes various climates and their groups/types	C98. Describes cold snow forest climates and its groups.
	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CL076. Describes various climates and their groups/types	C99. Describes polar climates and its types.
	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CL076. Describes various climates and their groups/types	C100. Describes highland climates and its types.
Climate Change	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL077. Explains climate change and related concepts	C101. Classifies the alteration of glacial and interglacial periods according to geological records.

		LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL077. Explains climate change and related concepts	C102.Evaluates the climate changes in the recent past.
		LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL077. Explains climate change and related concepts	C103.Summarises the causes of climate change.
		LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL077. Explains climate change and related concepts	C104.Describes the causes and effects of global warming.
V. Water (Oceans) 12. Water (Oceans)	Earth	LO8. Demonstrates through models or diagrams e.g., interior of the earth, structure of the atmosphere, hydrological cycle, movement of Plates, drainage patterns, etc.	CL078. Explains the features of earth	C105.Justifies why earth is termed as 'Blue Planet'.
	Hydrological Cycle	LO8. Demonstrates through models or diagrams e.g., interior of the earth, structure of the atmosphere, hydrological cycle, movement of Plates, drainage patterns, etc.	CL079. Summarises the hydrological cycle	C106.Explains the processes of the water cycle and summarises how an increase in demand for water leads to a water crisis.
	Relief of the Ocean Floor	LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL080. Analyzes the relief of the ocean floor	C107.Explains the structure of ocean floor.

		LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CL080. Analyzes the relief of the ocean floor	C108. Summarises the features of different divisions of ocean floor.
		LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL081. Elaborates on the minor relief features of ocean floor	C109. Illustrates mid-oceanic ridges, seamounts, submarine canyons, guyots, and atolls.
	Temperature of the Ocean Waters	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL082. Summarises the heating and cooling of oceanic water	C110. Explains the process of heating and cooling of oceanic water and factors that affect temperature distribution in ocean.
		LO6. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL082. Summarises the heating and cooling of oceanic water	C111. Describes horizontal and vertical distribution of temperature.
	Salinity of Ocean Water	LO6. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL083. Describes the salinity of ocean waters	C112. Recognizes factors affecting the salinity of ocean waters.
		LO6. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL083. Describes the salinity of ocean waters	C113. Explains the horizontal and vertical distribution of salinity.
VI. Life on the Earth	Tides, Currents and Waves	LO7. Describes technical terms and theories related to origin of the universe and earth,	CL084. Explains tides, currents and waves	C114. Defines and differentiates between tides and currents.

13. Movements of Ocean Water		continental drift theory, plate tectonic, climatic regions, etc.		
		LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO84. Explains tides, currents and waves	C115.Describes the formation and motion of waves.
		LO7. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO84. Explains tides, currents and waves	C116.Summarises the characteristics of waves.
	Tides	LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO85. Explains the concept of tides	C117.Determines the forces that cause tides.
		LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO85. Explains the concept of tides	C118.Differentiates between tides on different bases.
		LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO85. Explains the concept of tides	C119.Analyzes the importance of tides.

	Ocean Currents	LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CL086. Explains the concept of ocean currents	C120.Describes ocean currents and the forces that influence them.
		LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CL086. Explains the concept of ocean currents	C121.Classifies ocean currents based on different criteria.
		LO4. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CL086. Explains the concept of ocean currents	C122.Describes major ocean currents and its effects.
VI. Life on the Earth	Biodiversity	LO9. Justifies importance of biodiversity by giving examples of flora and fauna from local to global	CL087. Describes biodiversity and its distribution on the earth	C123.Explains the term 'biodiversity' and what it entails.
		LO9. Justifies importance of biodiversity by giving examples of flora and fauna from local to global	CL088. Illustrates the three levels of biodiversity with examples	C124.Describes the features of genetic diversity, species diversity, and ecosystem diversity with examples.
	Importance of Biodiversity	LO9. Justifies importance of biodiversity by giving examples of flora and fauna from local to global	CL089. Summarises the importance of biodiversity	C125.Articulates different roles through which biodiversity has contributed to the development of human culture.
		LO9. Justifies importance of biodiversity by giving examples of flora and fauna from local to global	CL090. Determines the role of biodiversity	C126.Analyzes the ecological, economic, and scientific role of biodiversity.
14. Biodiversity and Conservation				

	Loss of Biodiversity	LO9. Justifies importance of biodiversity by giving examples of flora and fauna from local to global	CL091. Summarises the phenomenon of loss of biodiversity	C127.States different factors that contribute to the loss of biodiversity.
		LO9. Justifies importance of biodiversity by giving examples of flora and fauna from local to global	CL091. Summarises the phenomenon of loss of biodiversity	C128.Summarises the classification of threatened species.
	Conservation of Biodiversity	LO12. Illustrates decision making and problem-solving skills, e.g., initiatives at local level to minimize environmental pollution, mitigation of natural hazards and disasters and combat climate change.	CL092. Explains the conservation of biodiversity	C129.Analyzes the measures and initiatives taken by locals and government for the conservation of biodiversity.

India-Physical Environment

I. Introduction 1. India — Location	The Extent of India	LO6. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL093. Summarises the location and extent of India on the earth	C130.Defines India’s territorial limit and marks the latitudinal and longitudinal extent of India on a map.
		LO6. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL093. Summarises the location and extent of India on the earth	C131.Compares the patterns of different physical characteristics across India.
		LO6. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL093. Summarises the location and extent of India on the earth	C132.Determines the extent of India in terms of surface areas.

	The Size of India	L06. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL094. Analyzes the physical diversity of India and its importance	C133.Explains the reasons behind the unique regional identity of the Indian subcontinent and analyzes how India's physical diversity leads to a variety in resources.
	India's Neighbours	L06. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL095. Articulates the physical geography of India and its neighbours	C134.Detects India and its neighbouring countries on the map of Asia.
		L06. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL095. Articulates the physical geography of India and its neighbours	C135.Critically analyzes physical barriers with our neighbouring countries.
II. Physiography 2. Structure and Physiography	The History of the Earth	L06. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL096. Analyzes the history of the Earth	C136.Summarises different forces and stages of movement of plates that formed the landforms that we see today.
		L06. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CL096. Analyzes the history of the Earth	C137.Evaluates geological structures and geomorphologic processes that forged Indian subcontinent into existence.
	The Peninsular Block	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g, landforms, rocks, climate, drainage, ocean floor configuration, etc.	CL097. Describes the Peninsular Block of India	C138.Summarises the formation of Peninsular Block and enlists its features with examples.

The Himalayas & Other Peninsular Mountains	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO98. Analyzes the Himalayas and other Peninsular mountains	C139.Describes the features of the Himalayas and other Peninsular mountains in relation to their stage.
Indo-Ganga-Brahmaputra Plain	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO99. Summarises the formation of major Indian plains	C140.Explains the formation of the plains by the rivers Indus, Ganga and Brahmaputra.
Physiography	L07. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO100. Describes the physiography of India	C141.Classifies India's physiography into six divisions based on micro variations.
The North and North-eastern Mountains	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO101. Describes the North and North-eastern mountains	C142.Explains the features and impact of the North and North-eastern Mountains.
The Northern Plains	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO102. Describes the Northern Plains	C143.Explains formation of Northern Plains, its zones and its rivers.
		CLO103. Describes the Northern Plains	C144.Summarises the features of Northern Plains.

	The Peninsular Plateau	L07. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO104. Describes the Peninsular Plateau	C145. Summarises the physical features and divisions of the Peninsular plateau.
		L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO105. Describes the major Indian plateaus	C146. Explains the formation and features of the Satpura range, the North-eastern Plateau, the Chotanagpur Plateau, and the Meghalaya Plateau.
	The Indian Desert	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO106. Describes the Indian Desert	C147. Analyzes the features of Indian Desert.
	The Coastal Plains	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO107. Describes the Coastal Plains	C148. Analyzes the features and effect of different divisions of coastal plains.
	The Islands	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO108. Describes the Islands of India	C149. Summarises the features of Indian islands.
II. Physiography 3. Drainage System	Drainage and Drainage Patterns	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO109. Explains drainage and drainage patterns	C150. Analyzes the different types of drainage patterns.

Drainage Systems of India	L05. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CLO110. Summarises drainage systems of India	C151. Differentiates between different Indian drainage systems on various bases.
	L05. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CLO110. Summarises drainage systems of India	C152. Explains components of Indian drainage system.
The Himalayan Drainage System	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO111. Describes the Himalayan Drainage System	C153. Summarises the evolution and features of the Himalayan drainage system, along with its impact on rivers.
	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO111. Describes the Himalayan Drainage System	C154. Identifies major Himalayan rivers.
	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO112. Describes the major river systems of India	C155. Analyzes the features of different rivers of Indus system.
	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks,	CLO112. Describes the major river systems of India	C156. Analyzes the features of different rivers of Ganga system.

The Systems of India	River of	climate, drainage, ocean floor configuration, etc.		
		L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO112. Describes the major river systems of India	C157. Analyzes the features of different rivers of Brahmaputra system.
		L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO112. Describes the major river systems of India	C158. Summarises the features of different rivers of Peninsular drainage system.
		L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO112. Describes the major river systems of India	C159. Explains the evolution of the peninsular drainage system.
	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO112. Describes the major river systems of India	C160. Analyzes the features of different rivers of Peninsular drainage system.	
Extent of Usability of River Water	L012. Illustrates decision making and problem-solving skills, e.g., initiatives at local level to minimize environmental pollution, mitigation of natural	CLO113. Analyzes the problems associated with the usability of river water	C161. Evaluates the problem of availability of water resources and its management and plans the schemes of inter-basin linkage.	

		hazards and disasters and combat climate change.		
III. Climate, Vegetation and Soil 4. Climate	Climate, Weather and Monsoon	L07. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO114. Summarises the meanings of climate-related concepts	C162.Describes climate, weather and monsoon.
	Unity and Diversity in the Monsoon Climate	L07. Describes technical terms and theories related to origin of the universe and earth, continental drift theory, plate tectonic, climatic regions, etc.	CLO115. Evaluates the variation in seasons in India	C163.Differentiates the weather and climate of different regions of India and summarizes the regional variations in precipitation.
	The Nature of Indian Monsoon	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO116. Summarises the nature of Indian monsoon	C164.Describes the onset of and break in the monsoon in India.
		L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO116. Summarises the nature of Indian monsoon	C165.Describes the importance of El-Nino.
		L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO116. Summarises the nature of Indian monsoon	C166.Evaluates the break in Indian monsoon.

The Rhythm of Seasons	L05. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CLO117. Summarises the four Indian seasons	C167. Summarises the nature of cold weather season, hot weather season and the southwest monsoon season in India.
Monsoon Winds of India	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO118. Summarises the nature of the monsoon winds of India	C168. Explains the nature of monsoon winds of the Arabian sea and monsoon winds of the Bay of Bengal.
Traditional Indian Seasons	L05. Distinguishes between natural phenomena and processes on the basis of their characteristics e.g., ocean currents, rocks and minerals, plate boundaries, earthquake waves, cyclone and anticyclone	CLO119. Elaborates on the traditional Indian seasons	C169. Lists traditional Indian seasons and months, and explains why the traditional Indian seasons do not match with the seasons of south India.
Distribution of Rainfall	L06. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CLO120. Analyzes the distribution of rainfall in India	C170. Differentiates areas based on distribution of rainfall.
Monsoon and the Economic Life in India	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO121. Evaluates the effects of monsoon on life in India	C171. Explains how monsoon impacts economic life in India.
Global Warming	L012. Illustrates decision making and problem-solving skills, e.g., initiatives at local level to minimize environmental pollution, mitigation of natural	CLO122. Explains the nature of global warming	C172. Explains the causes of global warming and preventive measures.

		hazards and disasters and combat climate change.		
III. Climate, Vegetation and Soil 5. Natural Vegetation	Types of Vegetation	L04. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO123. Illustrates India's natural vegetation.	C173. Compares natural and planted vegetation of India.
	Types of Forests	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO124. Summarises the features of different forests of India	C174. Classifies Indian forests into five groups based on certain common features such as predominant vegetation type and climatic regions, and represents them on a map.
		L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO125. Summarises the features of different forests of India	C175. Compares tropical evergreen and semi evergreen forests.
		L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO125. Summarises the features of different forests of India	C176. Explains the features of tropical deciduous forests.
		L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO125. Summarises the features of different forests of India	C177. Explains the features of tropical thorn forests.

	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO125. Summarises the features of different forests of India	C178.Explains montane forests and its types.
	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO125. Summarises the features of different forests of India	C179.Summarises the vegetations of different mountain forests.
	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO125. Summarises the features of different forests of India	C180.Differentiates between different wetlands.
Forest Conservation	L012. Illustrates decision making and problem-solving skills, e.g., initiatives at local level to minimize environmental pollution, mitigation of natural hazards and disasters and combat climate change.	CLO126. Summarises the importance of forest conversation	C181.Explains the importance of forest conservation and policies by Forest Department of India.
Social Forestry	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO127. Summarises the different types of forestry	C182.Explains social forestry and farm forestry.
Forest & Life	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks,	CLO128. Describes the importance of forest	C183.Analyzes the importance of forest to the tribal communities.

		climate, drainage, ocean floor configuration, etc.		
	Wildlife Conservation	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO129. Evaluates the importance of wildlife conservation	C184.Describes various initiatives measures by the Indian Government taken to conserve wildlife.
	Biosphere Reserves	L06. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CLO130. Explains the nature and distribution of Biosphere Reserves in India	C185.Summarises the characteristics of Biosphere Reserves
IV. Natural Hazards and Disasters: Causes, Consequences and Management 6. Natural Hazards and Disasters	Disasters	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO131. Describes natural disasters	C186.Evaluates different causes of and suggest preventative measures for natural disasters
	Classification of Natural Disasters	L04. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO132. Differentiates between different natural disasters	C187.Illustrates atmospheric disasters, terrestrial disasters, biological disasters and aquatic disasters.
	Natural Disasters & Hazards in India	L06. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CLO133. Summarises the natural disasters in India	C188.C761. Distinguishes between natural disasters & hazards in India.

Earthquakes	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO134. Describes earthquake as a natural disaster	C189.Describes the nature and distribution of earthquakes in India.
	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO134. Describes earthquake as a natural disaster	C190.Summarises the effects of earthquakes and the measures to mitigate the damage due to earthquake.
Tsunami	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO135. Describes tsunami as a natural disaster	C191.Describes the causes and effects of tsunami as well as the measures to mitigate the damage due to tsunamis.
Tropical Cyclone	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO136. Describes tropical cyclone as a natural disaster	C192.Explains tropical cyclones, its structure and its effects.
	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO136. Describes tropical cyclone as a natural disaster	C193.Illustrates the distribution of tropical cyclones in India.
Floods	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO137. Describes flood as a natural disaster	C194.Describes the causes of different kinds of flood and the consequences of floods in India.

Droughts	L04. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO138. Describes drought as a natural disaster	C195. Summarises droughts, its types, and its effects.
	L04. Classifies processes which bring changes on the earth surface i.e., endogenic & exogenic, earthquake, volcanic eruption, weathering, erosion, mass wasting, etc.	CLO138. Describes drought as a natural disaster	C196. Describes the distribution of drought regions in India.
Landslides	L03. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.	CLO139. Describes landslide as a natural disaster	C197. Summarises the features of landslides as well as the effects and ways to mitigate losses due to landslides.
	L06. Shows spatial distribution of natural features and phenomena on the map e.g., relief, earthquake, ocean currents, climates, etc.	CLO139. Describes landslide as a natural disaster	C198. Describes the distribution of landslides prone regions in India.
Disaster Management	L012. Illustrates decision making and problem-solving skills, e.g., initiatives at local level to minimize environmental pollution, mitigation of natural hazards and disasters and combat climate change.	CLO140. Enlists the measures to manage natural disasters	C199. Elucidates three stages involved in disaster mitigation and management and plans disaster management techniques/strategies.

Table VII: Content domain specific learning outcomes and competencies – Class:12

Fundamentals of Human Geography

I. Human Geography 1. Human Geography: Nature and Scope	Relationship Between Nature and Humans	LO1. Explains nature of human geography and its importance	CLO1. Justifies the importance of geography in understanding the history of humans	C1. Summarizes 'dualism' characteristic of Geography and explains two major components of the earth – nature (physical environment) and life forms including human beings.
	Inter-disciplinary Nature and Dependence of Geography	LO2. Draws interlinkages of Human Geography with other disciplines	CLO2. Justifies that geography is a truly multi-disciplinary subject	C2. Elaborates various fields and sub-fields of human geography.
II. People 2. The World Population: Distribution, Density and Growth	Patterns of Population Distribution in the World	LO7. Describe technical terms and theories related to population, Human Development Index etc.	CLO3. Explains how patterns of population distribution and density help us understand the demographic characteristics of any area	C3. Explain the terms population distribution, population density and the patterns of population distribution.
	Factors Influencing the Distribution of Population	LO4. Recognise spatial pattern of natural and human phenomena	CLO4. Explains the factors influencing the distribution of population	C4. Categorizes factors influencing the distribution of population into geographic, economic, social and cultural and explains them.

	Population Growth and its Components	L07. Describe technical terms and theories related to population, Human Development Index etc.	CL05. Summarises the concept of population growth	C5. Explains the term 'population growth' and justifies that population change in an area is an important indicator of economic development, social upliftment and historical and cultural background of the region.
		L07. Describe technical terms and theories related to population, Human Development Index etc.	CL06. Explains the factors affecting population growth	C6. Explains the three factors that influence population growth – births, deaths and migration.
	Demographic Transition	L07. Describe technical terms and theories related to population, Human Development Index etc.	CL07. Explains the concept of demographic transition	C7. Elaborates on the Demographic Transition Theory and determines India's stage of demographic transition.
	Population Control Measures	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL08. Creates a population control strategy	C8. States some of the measures which can help population control and develops a population control strategy for India.
II. People 3. Human Development	What is Growth and Development?	L07. Describe technical terms and theories related to population, Human Development Index etc.	CL09. Describes growth and development	C9. Differentiates between growth and development and determines the significant aspects of human development.

	The Pillars of Human Development	LO7. Describe technical terms and theories related to population, Human Development Index etc.	CLO10. Summarises the pillars of human development	C10. Analyzes the relationships of the four pillars with human development: equity, sustainability, productivity, empowerment.
	Human Development Index and How to Improve It	LO7. Describe technical terms and theories related to population, Human Development Index etc.	CLO11. Describes the approaches to human development	C11. Describes the income approach, welfare approach, basic needs approach and capability approach to human development.
		LO7. Describe technical terms and theories related to population, Human Development Index etc.	CLO12. Describes Human Development Index (HDI) as an indicator to measure different aspects of human development	C12. Explains how life expectancy at birth, adult literacy rate, and access to resources are part of the human development index.
	International Comparisons in Human Development Index of Countries	LO4. Recognise spatial pattern of natural and human phenomena	CLO13. Compares HDI with justifications of countries	C13. Describes the characteristics of countries which have very high, high, medium, and low HDI.
III. Human activities 4. Primary Activities	Hunting and Gathering	LO4. Recognise spatial pattern of natural and human phenomena	CLO14. Describes the economic activity of hunting and gathering	C14. Describes the history of hunting and rationalizes why has hunting been banned in India.
		LO4. Recognise spatial pattern of natural and human phenomena	CLO14. Describes the economic activity of hunting and gathering	C15. Evaluates the global economic role of gathering.

	Pastoralism	LO4. Recognise spatial pattern of natural and human phenomena	CL015. Describes the economic activity of pastoralism	C16. Describes nomadic herding and commercial livestock rearing as economic activities.
	Agriculture	LO4. Recognise spatial pattern of natural and human phenomena	CL016. Explains primitive subsistence agriculture and intensive subsistence agriculture	C17. Describes primitive subsistence agriculture and identifies the areas on a map where it is practised.
		LO4. Recognise spatial pattern of natural and human phenomena	CL017. Explains primitive subsistence agriculture and intensive subsistence agriculture	C18. Describes different forms of intensive subsistence agriculture and identifies the areas on a map where it is practised.
		LO4. Recognise spatial pattern of natural and human phenomena	CL018. Describes plantation agriculture	C19. Identifies the crops grown by plantation agriculture and describes the timeline of events in plantation agriculture.
		LO4. Recognise spatial pattern of natural and human phenomena	CL019. Describes extensive commercial grain cultivation	C20. Identifies the crops grown by and regions of extensive commercial grain cultivation, and justifies the economic viability of extensive commercial grain cultivation.
	Other Types of Farming	LO4. Recognise spatial pattern of natural and human phenomena	CL020. Describes mixed farming	C21. Lists the characteristics of mixed farming and identifies regions where it is practised.

		LO4. Recognise spatial pattern of natural and human phenomena	CLO21. Describes dairy farming	C22. Lists the characteristics of dairy farming and identifies regions where it is practised.
		LO4. Recognise spatial pattern of natural and human phenomena	CLO22. Describes Mediterranean agriculture	C23. Defines viticulture or grape cultivation and identifies regions where it is practised.
		LO4. Recognise spatial pattern of natural and human phenomena	CLO23. Describes market gardening and horticulture	C24. Lists the characteristics of market farming and identifies regions where it is practised.
		LO4. Recognise spatial pattern of natural and human phenomena	CLO24. Describes the types of farming organisations	C25. Describes co-operative and collective farming.
	Mining	LO4. Recognise spatial pattern of natural and human phenomena	CLO25. Summarizes mining as an economic activity	C26. Identifies the factors affecting profitability of mining operations and categorizes mining into two types depending on the mode of occurrence and the nature of the ore.
III. Human activities 5. Secondary Activities	Secondary Activities	LO7. Describe technical terms and theories related to population, Human Development Index etc.	CLO26. Describes secondary activities	C27. Differentiates between primary and secondary activities with the help of examples.

	Manufacturing	L07. Describe technical terms and theories related to population, Human Development Index etc.	CLO27. Describes the traits of the manufacturing industries	C28. Explains the process of manufacturing and describes the major trends of modern industrial activities especially in the developed countries of the world.
	Mechanisation and Industries	L07. Describe technical terms and theories related to population, Human Development Index etc.	CLO28. Explains the characteristics of modern large-scale industries	C29. Explains how mechanisation and high-tech innovation play a key role in the manufacturing process.
		L07. Describe technical terms and theories related to population, Human Development Index etc.	CLO29. Explains the characteristics of modern large-scale industries	C30. Determines the factors influencing industrial locations.
	Classification of Manufacturing Industries	L07. Describe technical terms and theories related to population, Human Development Index etc.	CLO30. Classifies manufacturing industries on different bases	C31. Elaborates on industries based on size, inputs/raw materials, output/products and ownership.
III. Human activities 6. Tertiary and Quaternary Activities	Tertiary and Quaternary Activities	L07. Describe technical terms and theories related to population, Human Development Index etc.	CLO31. Summarises tertiary and quaternary activities	C32. Defines and differentiates between tertiary, quaternary, and quinary activities.
	Examples of Tertiary Activities	L07. Describe technical terms and theories related to population, Human Development Index etc.	CLO32. Elaborates on tertiary activities	C33. Describes trading as a tertiary activity.

		L07. Describe technical terms and theories related to population, Human Development Index etc.	CLO33. Elaborates on tertiary activities	C34. Describes transport and communication as tertiary activities.
		L07. Describe technical terms and theories related to population, Human Development Index etc.	CLO33. Elaborates on tertiary activities	C35. Describes the service industry/activity.
		L07. Describe technical terms and theories related to population, Human Development Index etc.	CLO34. Elaborates on quaternary and quinary activities	C36. Analyzes and give examples of quaternary and quinary activities.
	Service in the Digital Age	L07. Describe technical terms and theories related to population, Human Development Index etc.	CLO35. Elaborates on the nature of service in the digital age	C37. Explains the digital divide and describes the process and advantages of outsourcing of services.
IV. Transport, Communication and Trade	World Transport	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CLO36. Explains transportation	C38. Describes transportation as an organised service industry and justifies that the high living standards and quality of life depend on efficient transportation, communications and trade.
	7. Transport and Communication	Land Transport	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CLO37. Summarises concepts related to land transport

		L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL037. Summarises concepts related to land transport	C40. Explains border roads.
	Rail Transport	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL038. Summarises concepts related to rail transport	C41. Describes the uses and networks of railway in the world.
		L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL038. Summarises concepts related to rail transport	C42. Describes the major trans-continental railway lines of the world.
	Water Transport	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL039. Summarises concepts related to water transport	C43. Describes the advantages of water routes.
		L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL039. Summarises concepts related to water transport	C44. Describes the major sea routes of the world.

		L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL039. Summarises concepts related to water transport	C45. Describes coastal shipping.
		L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL039. Summarises concepts related to water transport	C46. Describes the importance of canals in sea transport.
		L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL039. Summarises concepts related to water transport	C47. Describes the important inland waterways of the world.
	Air Transport	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL040. Summarises concepts related to air transport	C48. Explains the significance of air travel.
		L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL040. Summarises concepts related to air transport	C49. Lists the advantages of air travel over other modes of travel.

	Pipelines	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CLO41. Summarises concepts related to pipelines	C50. Describe the network and use of pipelines.
	Communication	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CLO42. Determines the advantages of communications	C51. Justifies why modern communication systems has made the concept of global village a reality more than transportation.
IV. Transport, Communication and Trade 8. International Trade	Introduction and History of Trade	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CLO43. Gives an overview of international trade	C52. Describes the development, history and categories of international trade.
	Basis for International Trade	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CLO44. Describe the basis for international trade	C53. Explains the role of geological resources, mineral resources, climate, cultural factors, size of population, economic development, and foreign investment in international trade.
	Free Trade	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CLO45. Justifies the need for free trade	C54. Evaluates the impact of globalisation along with free trade on the international trade.

	International Trade Organisations	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc	CLO46. Summarises the nature of international trade organisations in international trade	C55. Explains the roles and responsibilities of the World Trade Organisation.
	Concerns with International Trade	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CLO47. Analyzes the concerns with international trade	C56. Evaluates the positive and negative aspects of international trade.
	Role of Ports in International Trade	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CLO48. Describe the roles of ports in international trade	C57. Classifies ports as per traffic, location and specialised functions.
		L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CLO49. Describe the roles of ports in international trade	C58. Justifies why the chief gateways of the world of international trade are the harbours and ports.
India: People and Economy				

I. People 1. Population: Distribution, Density, Growth and Composition	Distribution of Population	LO4. Recognise spatial pattern of natural and human phenomena.	CL050. Summarises the patterns of population distribution in India	C59. Hypothesises a close relationship between population and physical, socio-economic and historical factors.
		LO4. Recognise spatial pattern of natural and human phenomena.	CL050. Summarises the patterns of population distribution in India	C60. Describes the patterns of spatial distribution of population in India.
	Density of Population	LO4. Recognise spatial pattern of natural and human phenomena.	CL051. Summarises the patterns of population density in India	C61. Analyzes the impact of physiological and agricultural density of India on the total density of population.
	Growth of Population	LO4. Recognise spatial pattern of natural and human phenomena.	CL052. Summarises the patterns of population growth in India	C62. Explains how natural and induced components contribute to growth in population.
		LO4. Recognise spatial pattern of natural and human phenomena.	CL052. Summarises the patterns of population growth in India	C63. Analyzes the decadal growth in India from 1901 to 2011.
	Regional Variation in Population Growth	LO4. Recognise spatial pattern of natural and human phenomena	CL053. Summarises the patterns of population trends in India	C64. Analyzes the growth trends observed in various states of India from the period of 1991 to 2001.

		LO4. Recognise spatial pattern of natural and human phenomena	CL053. Summarises the patterns of population trends in India	C65. Explains the role of growth in the number of adolescents in population growth.
Population Composition		LO4. Recognise spatial pattern of natural and human phenomena	CL054. Summarises the composition of the Indian population	C66. Describes the urban-rural composition of the Indian population.
		LO4. Recognise spatial pattern of natural and human phenomena	CL054. Summarises the composition of the Indian population	C67. Describes the linguistic composition of the Indian population.
		LO4. Recognise spatial pattern of natural and human phenomena	CL054. Summarises the composition of the Indian population	C68. Describes the religious composition of the Indian population.
		LO4. Recognise spatial pattern of natural and human phenomena	CL054. Summarises the composition of the Indian population	C69. Describes the working population composition of the Indian population.
		LO4. Recognise spatial pattern of natural and human phenomena	CL054. Summarises the composition of the Indian population	C70. Describes the gender composition of the Indian population.

II. Human Settlements 2. Human Settlements	Introduction and Types of Human Settlements	LO4. Recognise spatial pattern of natural and human phenomena.	CL055. Defines settlements – urban and rural	C71. Classifies urban and rural settlements based on the occupational activities performed.
	Rural Settlements	LO4. Recognise spatial pattern of natural and human phenomena.	CL056. Describes rural settlements	C72. Illustrates the structure and types of rural settlements in India.
	Urban Settlements	LO4. Recognise spatial pattern of natural and human phenomena.	CL057. Describes urban settlements	C73. C410. Describes the development and structure of urban settlements in India.
	Urbanisation in India	LO4. Recognise spatial pattern of natural and human phenomena.	CL058. Describes and calculates the rate of urbanisation in India	C74. Calculates the level of urbanisation and analyzes India’s trend of growth in Urbanisation over the last five decades.
		LO4. Recognise spatial pattern of natural and human phenomena.	CL059. Describes and calculates the rate of urbanisation in India	C75. Analyzes why the growth rate of urbanisation has slowed down during last two decades.
		LO4. Recognise spatial pattern of natural and human phenomena.	CL060. Classifies urban centres based on different criteria	C76. Classifies Indian cities and towns based on dominant or specialised functions.

III. Resources and Development 3. Land Resources and Agriculture	Uses of Land and Land Use Categories	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL061. Describes the uses of land and land use categories	C108. Summarises various uses of land and describes the land-use categories as maintained in the Land Revenue Records.
	Land Use Changes in India	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL062. Summarise the land use changes in India over time	C109. Analyzes types of changes and graphs showing changes in shares of land-use categories in India.
	Common Property Resources	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL063. Summarises the ownership of land in India	C110. Explains the concept of common property resources and its importance for women in India.
	Agricultural Land Use in India	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL064. Describes the agricultural land use in India and how it is calculated	C111. Analyzes why there has been a greater decline of cultivated land, despite a corresponding decline of cultivable wasteland.
		LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL064. Describes the agricultural land use in India and how it is calculated	C112. Determines strategies to evolve and adopt land-saving technologies for bringing in additional land under net sown area and for increasing cropping intensity in India.
	Cropping Seasons in India and Types of Farming	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL065. Describes the pattern of sowing depending on the seasons	C113. Describes three distinct crop seasons and major crops sown in the northern and interior parts of India.

		LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL065. Describes the pattern of sowing depending on the seasons	C114. Classifies farming into two types based on main source of moisture for crops.
Food Production in India: Cereals, Grains and Others		LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL066. Summarises the production and use of cereals, food grains and other crops in India	C115. Explains the importance of food grains for the Indian agricultural economy.
		LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL066. Summarises the production and use of cereals, food grains and other crops in India	C116. Summarises cereal, pulses, oilseed, fibre crop, sugarcane, tea and coffee production in India.
Agricultural Development in India		LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL067. Summarises the progress made in agriculture in India since independence	C117. Analyzes the impact of the Intensive Agricultural District Programme (IADP), the Intensive Agricultural Area Programme (IAAP) and the Green Revolution on Indian agriculture.

	Growth of Agricultural Output and Technology	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL068. Describe the impact of technological development on agriculture	C118. Determines the causes and consequences of the growth of agricultural output and technology
	Problems of Indian Agriculture	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL069. Explains the problems faced by Indian agriculture	C119. Analyzes the shortcomings of agriculture in India and their impact on food production and farmers.
III. Resources and Development 4. Water Resources	Water as a Resource in India	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL070. Describes the water resources in India	C120. Summarizes the water resources available in India and identifies the factors that determine spatial distribution of the available water resources in the country.
		LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL070. Describes the water resources in India	C121. Explains the utilisation of available surface water and groundwater resources.
	Water Demand and Utilisation	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL071. Evaluates the water demand and supply in India	C122. C509. Analyzes India's present demand for water and explains why some states have low groundwater tables.
	Emerging Water Problems and	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL072. Summarises the water problem in the country	C123. Recognizes various emerging water problems.

	Deterioration of Water Quality	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL072. Summarises the water problem in the country	C124. Analyzes the causes for deterioration of quality of water.
	Water Conservation and Management	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL073. Summarises water conservation in India	C125. Describes the need for water management and conservation in India.
		LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL073. Summarises water conservation in India	C126. Explains the strategies of water management and conservation in India.
		LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL073. Summarises water conservation in India	C127. Explains the legal policies for water conservation in India.
III. Resources and Development 5. Mineral and Energy Resources	Importance of Minerals	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global.	CL074. Describes minerals and their importance	C128. Rationalizes that mineral resources provide the country with the necessary base for industrial development.
	Types of Mineral Resources	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global.	CL075. Explains the types of minerals	C129. Classifies minerals into two groups based on chemical and physical properties.

		LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global.	CL075. Explains the types of minerals	C130. Explains the characteristics of minerals.
	Distribution of Minerals in India	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global.	CL076. Explains the availability of minerals in different regions of India	C131. Determines the mineral reserves and their distribution in the country.
	Types of Minerals	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global.	CL077. Summarises information about the types of minerals of India	C132. Describes the location, uses, and importance of ferrous, non-ferrous, and non-metallic minerals.
	Conventional Energy Sources	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global.	CL078. Summarises information about conventional energy sources of India	C133. Describes the location, uses, and importance of coal mines, natural gas and petroleum.
	Non-Conventional Energy Sources	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global.	CL078. Summarises information about conventional energy sources of India	C134. Describes the sources and features of non-conventional sources of energy.
		LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global.	CL78. Summarises information about conventional energy sources of India	C135. Describes the location, uses, and importance of nuclear energy resources and nuclear power plants, solar energy, wind, tidal, wave, and geothermal energy, and bioenergy.

	Conservation of Mineral Resources	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global.	CL079. Explains the conservation of mineral resources of India	C136. Justifies the need to conserve mineral resources and suggests concrete steps.
III. Resources and Development 6. Planning and Sustainable Development in Indian Context	Planning	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL080. Explains the types of planning	C137. Explains sectoral planning and regional planning, as well the role of NITI Aayog.
	Target Area Planning	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL081. Justifies the need for target areas and groups for planning	C138. Analyzes the reasons behind introducing 'target area' and target group approaches to planning by the Planning Commission and provides examples of programmes directed towards the development of target areas.
	Case Study – Integrated Tribal Development Project in Bharmaur* Region	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL081. Justifies the need for target areas and groups for planning	C139. Critically evaluates the need for, aims of, and social benefits of ITDP in the Bharmaur tribal region.
	Case Study- Indira Gandhi Canal (Nahar) Command Area	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL081. Justifies the need for target areas and groups for planning	C140. Critically evaluates the need for, aims of, and impacts of irrigation on Indira Gandhi Canal (Nahar) Command Area.

	Hill Area Development Programme	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL082. Describes hills and drought-prone regions as target areas for planning	C141. Explains the aims and approaches of the Hill Area Development Programme.
	Drought Prone Area Programme	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL082. Describes hills and drought-prone regions as target areas for planning	C142. Explains the objectives, strategies and contribution of Drought Prone Area Programme in development of agriculture and restoration of ecological balance.
	Sustainable Development	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL083. Describes sustainable development in the context of India	C143. Creates a comprehensive definition of 'Sustainable Development'.
	Measures for Promotion of Sustainable Development	LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL083. Describes sustainable development in the context of India	C144. Suggests measures for the promotion of sustainable development in the country.
IV. Transport, Communication and International Trade 7. Transport and Communication	Transport and Communication	LO8. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL084. Provides an overview of the nature of transport and communication	C145. Describes the means and uses of transport and communication.

	Road Transport	LO8. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL085. Explains road transport in India	C146. Describes the history and classification of roads in India.
		LO8. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL085. Explains road transport in India	C147. Describes the national highways, state highways, district and other roads, border roads, and international highways of India.
	Rail Transport	LO8. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL086. Explains rail transport in India	C148. Explains the history and importance of railways in India, and describes steps to improve railways in India.
		LO8. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL086. Explains rail transport in India	C149. Identifies the major railway lines, railway zones and their headquarters, and classifies the railway based on the width of tracks.

		L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL086. Explains rail transport in India	C150. Describes the engineering and uniqueness of the Konkan Railway.
	Water Transport	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL087. Describes types of waterways	C151. Explains the inland waterway system and ocean routes in India.
	Air Transportation	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL088. Explains air transportation in India	C152. Illustrates the importance of air transport, specifically to India, and compares aeroplanes and helicopters as means of air transport.
	Oil & Gas Pipelines	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL089. Explains pipeline and gas transportation in India	C153. Describes the importance of pipelines and illustrates India's network of pipelines.

	Communication Networks	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL090. Describes the communication networks in India	C154. Analyzes the evolution in the methods of communication and categorizes the mode of communication into two types based on scale and quality.
	Personal Communication System	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL091. Describes the personal communications system in India	C155. Explains advantages and disadvantages of the internet as a personal communication system.
	Mass Communication System	L08. Explain cause and effect relationship on human environment interaction such as population distribution, migration, cropping patterns, transportation & communication, trade, etc.	CL092. Describes the mass communications system in India	C156. Describes the radio communications system, television communications system, and satellite communications system in India.
IV. Transport, Communication and International Trade 8. International Trade	India's Foreign Trade	L05. Compare and contrast various economic activities, trade, population, settlement, transport etc	CL093. Describes India's foreign trade	C157. Explains India's contribution to world trade and characteristics of its foreign trade.
		L05. Compare and contrast various economic activities, trade, population, settlement, transport etc	CL093. Describes India's foreign trade	C158. Analyzes the reasons behind sharp rise in the India's overseas trade.

	Changing Pattern of the Composition of India's Exports	L05. Compare and contrast various economic activities, trade, population, settlement, transport etc	CL094. Describes the changing patterns of export from India	C159. Determines the factors affecting exports of a country.
		L05. Compare and contrast various economic activities, trade, population, settlement, transport etc	CL094. Describes the changing patterns of export from India	C160. Analyzes the changing pattern of the composition of India's exports and represents export data in the form of graphs.
	Changing Patterns of the Composition of India's Import	L05. Compare and contrast various economic activities, trade, population, settlement, transport etc	CL094. Describes the changing patterns of import from India	C161. Determines the reason behind India's rising imports.
		L05. Compare and contrast various economic activities, trade, population, settlement, transport etc	CL094. Describes the changing patterns of import from India	C162. Analyzes the changing pattern of the composition of India's imports and represents export data in the form of graphs.
	Sea Ports	L05. Compare and contrast various economic activities, trade, population, settlement, transport etc	CL095. Summarises the development and features of sea ports in India	C163. Analyzes geographical factors that have supported India's trade activities, specifically advantages to the west coast due to higher number of ports.
		L05. Compare and contrast various economic activities, trade, population, settlement, transport etc	CL095. Summarises the development and features of sea ports in India	C164. Identifies and explains features and advantages of some of the major ports and harbours in India.

		L05. Compare and contrast various economic activities, trade, population, settlement, transport etc	CL095. Summarises the development and features of sea ports in India	C165. Describes how partition affected sea trade in India.
	Airports	L05. Compare and contrast various economic activities, trade, population, settlement, transport etc	CL096. Summarises airports in India	C166. Describes the role of airports in international trade.
		L05. Compare and contrast various economic activities, trade, population, settlement, transport etc	CL096. Summarises airports in India	C167. Identifies the major airports of India.
V. Geographical Perspective on Selected Issues and Problems 9. Geographical Perspective on Selected Issues and Problems	Environmental Pollution	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL097. Explains various sources of pollution	C168. Classifies types of pollution based on the medium through which pollutants are transported and diffused.
	Water Pollution	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL098. Summarises the state of water pollution in India	C169. Explains the causes and effects of water pollution in India and describes measures to control water pollution in India.
	Air Pollution	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL098. Summarises the state of air pollution in India	C170. Explains the causes and effects of air pollution in India and describes measures to control air pollution in India.

	Noise Pollution	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL099. Summarises the state of noise pollution in India	C171. Explains the causes and effects of noise pollution in India and describes measures to control water pollution in India.
	Urban Waste Disposal	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL0100. Summarises the state of solid waste pollution in India	C172. Explains the causes and effects of solid waste pollution in India and describes measures to control solid waste pollution in India.
	Rural-Urban Migration	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL0101. Analyzes the rural-urban migration and its role in pollution	C173. Explains reasons for rural-urban migration and rationalizes how it contributes to pollution.
	Problems of Slums	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL0102. Describes the health and social problems for slum dwellers	C174. Explains the causes of health and socio-environmental hazards in slums.
		L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL0103. Describes measures to solve problems of slum dwellers	C175. Suggests measures to solve the problems faced by slum dwellers and evaluates the effectiveness of the Swachh Bharat Mission.
	Land Degradation	L03. Analyzes the interrelationship between physical and human environment and their impact from local to global	CL0104. Describes the causes of and solution to the problem of land degradation in India	C176. Describes the natural and human causes of land degradation.

LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global

CLO104. Describes the causes of and solution to the problem of land degradation in India

C177. Suggests measures to solve the problem of land degradation.

8. SAMPLE PEDAGOGICAL PROCESSES AND ASSESSMENT STRATEGIES

“The pedagogical practices should be learner centric. It is expected of a teacher to ensure an atmosphere for students to feel free to ask questions. They would promote active learning among students with a focus on reflections, connecting with the world around them, creating and constructing knowledge. The role of a teacher should be that of a facilitator who would encourage collaborative learning and development of multiple skills through the generous use of resources via diverse approaches for transacting the curriculum.” [CBSE Curriculum for classes 11-12]

NCERT higher secondary stage learning outcomes document provides a common set of

pedagogical processes for each subject. Keeping these as guidelines, specific pedagogical processes and assessment strategies for a topic from one chapter each from classes and have been developed as suggestions and are shared in this section. These instances of pedagogical process and assessment strategies should enable teachers to derive principles for making the alignment between learning outcomes, pedagogical practices and assessment in their classrooms and to use these for creating their lesson plans. The key principles considered while designing the pedagogical processes and assessment strategies are the following:

1. Keeping learner at the centre
 - Since new knowledge is built over existing knowledge, both pedagogy and assessment should focus on students’ pre-requisite knowledge, skills, attitudes, and beliefs that they bring in classroom setting.
 - Constructivist approaches to learning with the student being at the centre of the learning process as an active constructor of knowledge must be emphasized.
 - Since students effectively learn by doing, classroom processes should involve activities, analysis and discussions. Systematic experimentation as a tool to discover/verify theoretical principles must be included.
2. Focusing on learning outcomes
 - Learning outcomes indicate what a student will be able to do at the end of an instruction unit by precisely breaking down broad goals of Geography education (apply reasoning to develop conceptual understanding, develop process skills and experimental, observational, manipulative, decision-making and investigatory skills, etc.) to more measurable and observable behaviour for each class.
 - Students learn better when the method of teaching, learning activities and assessment strategies are all aligned well to the learning outcomes. Pedagogical processes and assessment strategies should be aligned to both content domains and cognitive skills as mentioned in this document earlier.
3. Making effective use of assessments
 - Assessment should be viewed as an integral part of pedagogy and it should focus on giving timely individualized feedback to students. Quality formative assessment should be designed as it helps to modulate students’ understanding of their own learning and helps teachers adapt their pedagogy based on students’ actual learning.

- Multiple modes of assessment including portfolios, project work, presentations, written and oral assignments should be used to reflect individual capacities of a student.

4. Creating a social and inclusive learning environment

- Cooperative and peer-supported teaching learning activities should be used to empower students to take charge of their own learning.
- Peer assessment involving students assessing work of their peers against set assessment criteria should be used.

Specific pedagogical processes should be used in the classroom that would help those students who may face learning difficulties including language, visual-spatial, or mixed processing problems

SUGGESTED PEDAGOGICAL PROCESSES AND ASSESSMENT STRATEGIES FOR CLASS 11

Content Domain: The Physiographical Divisions of India: The Peninsular Block; The North and North-eastern Mountains

Chapter 2: Structure and Physiography

Table VIII: Suggested Pedagogical Processes and Assessment Strategies – Class:11

Learning outcomes	Competencies	Pedagogical Processes	Assessment Strategies
<p>LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.</p>	<p>C159. Summarises the formation of Peninsular Block and enlists its features with examples.</p>	<ul style="list-style-type: none"> • Models, diagrams, audio-visual materials, maps, atlas, satellite images, etc. may be used to explain the features of Peninsular Block. • Learners may be encouraged to identify physical features of the Peninsular Block of India/ State. • Quiz, puzzles, games, MCQs may be given to identify and differentiate between the east-flowing and the west-flowing rivers of the Indian Peninsular Block. • Locate the rift valleys, hills, and rivers of the Peninsular Block in India. • Models, diagrams, audio-visual materials, maps, atlas, satellite images, etc. may be used to explain features of the Indian Peninsular Block. 	<ul style="list-style-type: none"> • Assess students’ ability to explain the formation of the Peninsular Block by representing tectonic plate shifts and other processes using actual objects or by illustrating them. • Assess students’ ability to represent the extent of the Peninsular Block on a map through a map-filling activity. • Assess students’ ability to identify the rift valleys, hills and rivers of the Peninsular Block by having them mark them on a map or creating a graphic organiser.

LO3. Identifies natural features, and phenomena, on the earth surface and on maps and diagrams, e.g., landforms, rocks, climate, drainage, ocean floor configuration, etc.

C160. Describes the features of the Himalayas and other Peninsular mountains in relation to their stage.

- Models, diagrams, audio-visual materials, maps, atlas, satellite images, etc. may be used to explain the impact of the Himalayas on the geo-environment of the South Asian countries.
- Learners may be encouraged to identify physical features of India/ State.
- Diagrams on the blackboard, animation, or audio-visual materials may be used to explain the features of Kashmir or North-western Himalayas.
- Models, diagrams, audio-visual materials, maps, atlas, satellite images, etc. may be used to explain physical features of Himachal and Uttarakhand Himalayas.
- Learners may be encouraged to identify the course of different Himalayan rivers in India and infer their impact on the culture and social features of the associated States.
- Assess students' ability to analyze the impact of the Himalayas on the geo-environment of South Asia by having them fill a comparative table describing South Asia with and without the Himalayas.
- Assess students' ability to describe the mountains, their physical features and alignment by having them illustrate them and write a short encyclopaedia entry about them.
- Have students complete maps of India to represent the various physical components of the North and North-eastern mountains.
- Conduct a debate in class to discuss the influence of the Himalayas on the social and cultural characteristics of India.
- Ask students to write a travelogue to assess their understanding of the different parts of the Himalayas, including the ranges, rivers, and valleys.
- Have students draw a Venn diagram to compare the features of the Darjeeling and Sikkim Himalayas on one hand and the other Himalayan

			<p>mountains on the other hand, and then use the comparison to extract unique features of the former.</p>
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- Ask students to write the climatic and topographical requirements of tea plantations and match them with the features of the Darjeeling and Sikkim Himalayas.

SUGGESTED PEDAGOGICAL PROCESSES AND ASSESSMENT STRATEGIES FOR CLASS 12

Content Domain: Water Pollution

Chapter 12: Geographical Perspective on Selected Issues and Problems

Table IX: Suggested Pedagogical Processes and Assessment Strategies – Class:12

Learning outcomes	Competencies	Pedagogical Processes	Assessment Strategies
<p>LO3. Analyzes the interrelationship between physical and human environment and their impact from local to global</p>	<p>C179. Explains the causes and effects of water pollution in India and describes measures to control water pollution in India.</p>	<ul style="list-style-type: none"> • Discuss how various geographical, economic, and socio-cultural factors affect the distribution of population, settlements, and trade in India and the world. • Quiz, puzzles, games, and MCQs can be given to identify causes and effects of human activities on the environment and suggest measures to prevent the damage. • Debate with supporting and opposing arguments for how the physical environment has been modified by human beings and vice versa. Encourage students to provide recent data, information, and trends to support their arguments in the debate. • Audio-visual materials, case studies, and narratives may be used to discuss the effects of various human activities on the environment over years in India and list the Indian and International organisations working to control the pollution. 	<ul style="list-style-type: none"> • Have students research and write a case study about a place experiencing severe water pollution, explaining the causes and effects of the pollution, as well as the steps taken to mitigate the pollution. • Have students participate in a debate or discussion about the need to balance development with environmental causes. • Have students write newspaper articles about the causes and sources of water pollution in the major rivers of India. • Have students research the current programmes in place to protect India’s rivers and evaluate their effectiveness. • Have students write letters to authorities, suggesting measures to control water pollution.

9. TEST PAPER DESIGN

CLASS 12

Table X: Test Paper Design and chapter-wise mark distribution – Class:12

Content domain	Marks distribution
Textbook: Fundamentals of Human Geography	35
Unit 1. Human Geography	28-32
Unit 2. People	
Unit 3. Human Activities	
Unit 4. Transport, Communication and Trade	
Unit 5. Human settlements	
Map work	3-7
Textbook: India: People and Economy	35
Unit 6. People	28-32
Unit 7. Human Settlements	
Unit 8. Resources and Development	
Unit 9. Transport, Communication and International Trade	
Unit 10. Geographical Perspective on selected issues and problems	

Map work	3-7
Total	70

Table XI: Test Paper Design and question-type mark distribution – Class:12

Item types	Item category	Number of questions	Marks distribution
Select response questions	Multiple-choice questions	14	12-16
Free response questions	Short Source Based and Graph Based questions	2	4-8
	Short answer type question	5	13-17
	Long answer type question	5	23-27
	Map-based question	2	8-12

Table XII: Test Paper Design and cognitive domain-wise mark distribution – Class:12

Cognitive domain	Marks distribution
Remember and Understand	39-42
Apply	35-39
Analyze, Evaluate and Create	20-24
Total	70

Other details of the test paper:

- Maximum marks: 70
- Duration of the test: 3 Hours

10. ASSESSMENT OF PRACTICAL/PROJECT WORK

A key component of the geography curriculum for classes 11-12 is practical work to develop geographical skills, relating to collection, processing and analysis of spatial data/ information and preparation of report including maps and graphs and use of computers where ever possible; and to be sensitive to issues.

The learning outcomes for the curriculum as listed in chapter 6, include the following 2 learning outcomes from Class 11 which are especially relevant for practical work in geography.

LO10. Represents geographical information in suitable forms e.g., maps, diagrams, graphs, table, etc.

LO11. Demonstrates Geospatial skills (RS, GIS, and GNSS) as well as interprets Topographic sheets, Weather maps, etc

The learning outcomes for the curriculum as listed in chapter 5, include the following 2 learning outcomes from Class 12 which are especially relevant for practical work in geography.

LO8. Calculate statistical data and represent data in the suitable form e.g., map, diagram, table etc.

LO9. Exhibits map skills by drawing manually or digitally such as location, interpretation and analysis

LO10. Demonstrates Geospatial Skills (RS, GIS, GNSS) for geographical studies at Global/Regional/Local level

DESIGN OF THE PROJECT/PRACTICAL BASED ACTIVITIES

Students are expected to conduct experiments, do project-based activities, etc throughout the course of 2 years.

Table XIII. Distribution of marks for the projects/ppt/practical: Class 11

Activity	Distribution of marks
Unit-1: Fundamentals of Maps	10 Marks
Unit-2: Topographic and Weather Maps	15 Marks
Practical Record Book and Viva	5 Marks
Total	30 Marks

Table XIV. Distribution of marks for the projects/ppt/practical: Class 12

Activity	Distribution of marks
Unit 1: Processing of Data and Thematic Mapping	15 Marks
Unit 2: Field study or Spatial Information Technology	10 Marks
Practical Record Book and Viva	5 Marks
Total	30 Marks

SUGGESTED PROJECTS/ACTIVITIES/PRACTICAL - CLASS 11

Table XV. Suggested projects/activities/practical: Class 11

Practical Work in Geography Part I	
I. Fundamentals of Maps 1. Introduction to Maps 2. Map Scale 3. Latitude, Longitude and Time 4. Map Projections	<ul style="list-style-type: none"> • Geo spatial data, Concept of Geographical data matrix; Point, line, area data • Maps -types; scales-types; construction of simple linear scale, measuring distance; finding direction and use of symbols • Map projection- Latitude, longitude and time, typology, construction and properties of projection: Conical with one standard parallel and Mercator's projection. (Only two projections)
II. Topographic and Weather Maps 5. Topographical Maps 6. Introduction To Remote Sensing	<ul style="list-style-type: none"> • Study of topographic maps (1: 50,000 or 1: 25,000 Survey of India maps); contour cross section and identification of landforms-slopes, hills, valleys, waterfall, cliffs; distribution of settlements • Satellite imageries, stages in remote sensing data- acquisition, platform and sensors and data products, (photographic and digital)

SUGGESTED PROJECTS/ACTIVITIES/PRACTICAL - CLASS 12

Table XVI. Suggested projects/activities/practical: Class 12

Practical Work in Geography Part II

I: Processing of Data and Thematic Mapping

1. Data – Its Source and Compilation
2. Data Processing
3. Graphical Representation of Data

- Type and Sources of data: Primary, Secondary and other sources
- Tabulating and processing of data; calculation of averages, measures of central tendency
- Representation of data- construction of diagrams: bars, circles and flowchart; thematic maps; construction of dot; choropleth and isopleths maps

II. Spatial Information Technology

4. Spatial Information Technology

- Introduction to GIS; hardware requirements and software modules; data formats; raster and vector data, data input, editing and topology building; data analysis; overlay and buffer.

10.SAMPLE ASSESSMENT ITEMS WITH MARKING SCHEMES

1. Multiple Choice Question (MCQ)

Content (Chapter name)	Domain	Human Development
Content Learning outcome	CLO12. Describes Human Development Index (HDI) as an indicator to measure different aspects of human development	
Indicator	C12. Explains how life expectancy at birth, adult literacy rate, and access to resources are part of the human development index.	
Cognitive level	Knowledge	
Thinking Process	Recall, Infer	
Difficulty level	Easy	
Marks	1	
Time	2 minutes	
Item Stem	The Planning Commission of India has calculated the country's Human Development Index based on 3 indicators, including indicators of a healthy life. Which indicator contributes to a low score in health in the country?	

Correct answer	A child sex ratio of 850 females for every 1000 males in some Northern states	Reason: A low child sex ratio indicates low health of the country.
Distractor 1	Decline in death rate from 25/1000 to 6.5/1000 in approximately 60 years	Explanation: A decline in death rate indicates better health of people.
Distractor 2	Increasing life expectancy of females from 36 years to 70 years from 1951 to 2015	Explanation: A higher life expectancy indicates better health of people.
Distractor 3	A fall in birth rate from 41 to 21 since after Independence	Explanation: A lower birth rate in a highly populated country improves the health of the country.

2. Constructed Response Questions

Content domain (Chapter name)	Planning and Sustainable Development in Indian Context
Content Domain Learning outcome	CL082. Describes hills and drought-prone regions as target areas for planning
Indicator	C141. Explains the aims and approaches of the Hill Area Development Programme.
Cognitive level	Evaluate
Thinking Process	Examine
Difficulty level	Medium
Marks	2
Time	4 minutes
Item stem	Amira lives in the drought-prone region of Maharashtra, and her family was engaged in agricultural activities. On the implementation of the Drought-Prone Area Programme, the programme required her family to instead work on construction projects in the area.

	<p>However, several years later, the construction activities were reduced, and Amira’s family began to work on increasing the green cover of the area.</p> <p>In 3 sentences, explain how this shift aligns with the goals of sustainable development.</p>
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Marking Scheme

Part	Mark	Answer	Further Information
	0.5	Explains what sustainable development is	
	0.5	Explains why only construction projects do not lead to sustainable development	
	1	Explains the need for green cover for sustainable development	

3. Constructed Response Questions

Content domain (Chapter name)	Human Settlements
Content Domain Learning outcome	CL056. Describes rural settlements
Indicator	C72. Illustrates the structure and types of rural settlements in India.
Cognitive level	Understand
Thinking Process	Explain, Summarize
Difficulty level	Medium
Marks	3
Time	4 minutes
Item stem	<p>Physical features and socio-cultural factors have determined the types of rural settlements in parts of Rajasthan.</p> <p>A. What are the two types of rural settlements found in Rajasthan?</p> <p>B. How have the factors mentioned above led to these two types of settlements? Explain in brief.</p>

Marking Scheme			
Part	Mark	Answer	Further Information
	1	Writes the two types of settlements – clustered and semi-clustered	
	1	Explains how physical features have led to the development of clustered settlements	
	1	Explains how socio-cultural factors have led to the development of semi-clustered settlements	

4. Constructed Response Questions

Content domain (Chapter name)	Mineral and Energy Resources
Content Domain Learning outcome	CLO75. Explains the types of minerals
Indicator	C129. Classifies minerals into two groups based on chemical and physical properties.
Cognitive level	Understand
Thinking Process	Identify, Differentiate
Difficulty level	Easy
Marks	2
Time	2 minutes
Item stem	<p>State whether the following statements are true or false.</p> <p>A. Iron and copper are ferrous minerals.</p> <p>B. Graphite is a non-metallic, non-fuel mineral.</p> <p>C. Mica and bauxite have very similar chemical and physical properties.</p> <p>D. Bauxite and manganese are metallic minerals.</p>

Marking Scheme			
Part	Mark	Answer	Further Information
A	0.5	Identifies as false	
B	0.5	Identifies as true	
C	0.5	Identifies as false	
D	0.5	Identifies as true	

5. Constructed Response Questions

Content domain (Chapter name)	Water Resources		
Content Domain Learning outcome	CLO73. Summarises water conservation in India		
Indicator	C126. Explains the strategies of water management and conservation in India.		
Cognitive level	Create		
Thinking Process	Analyze, Solve, Outline		
Difficulty level	Hard		
Marks	6		
Time	10 minutes		
Item stem	<p>Imagine that you are responsible for solving the water problem in a small farming village in your district that depends on irrigation facilities and does not receive much rainfall in the year.</p> <p>Outline 3 concrete measures you would implement to solve the problem of water scarcity in the village.</p>		
Marking Scheme			
Part	Mark	Answer	Further Information
	1	Lists relevant causes of water scarcity in the village	

	3	Suggests 3 relevant solutions with respect to irrigation, groundwater and conservation	
	2	Plans the measures to an appropriate extent	

6. Multiple Choice Question (MCQ)

Content (Chapter name)	Domain	Natural Vegetation
Content Learning outcome	Domain	CLO125. Summarises the features of different forests of India
Indicator		C175. Compares tropical evergreen and semi evergreen forests. C176. Explains the features of tropical deciduous forests. C177. Explains the features of tropical thorn forests.
Cognitive level		Understand
Thinking Process		Infer, Associate
Difficulty level		Medium
Marks		1
Time		1 minute
Item Stem		What type of tree is most likely to be found on the eastern slopes of the Western Ghats?
Correct answer	Sandalwood	Reason: The eastern slopes of the Western Ghats have moist deciduous forests, and the sandalwood tree is found in moist deciduous forests.
Distractor 1	Mahogany	Explanation: The mahogany tree is found in tropical evergreen forests.
Distractor 2	Axlewood	Explanation: The axlewood tree is found in dry deciduous forests.
Distractor 3	Date palm	Explanation: The date palm tree is found in tropical thorn forests.

7. Constructed Response Questions

Content (Chapter name)	domain	Natural Hazards and Disasters
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Content Domain Learning outcome	CLO131. Describes natural disasters		
Indicator	C186. Evaluates different causes of and suggest preventative measures for natural disasters.		
Cognitive level	Evaluate		
Thinking Process	Justify, Critique		
Difficulty level	Difficult		
Marks	5		
Time	4 minutes		
Item stem	Read the definition of a disaster, paying special attention to the underlined phrase: <i>Disaster is an undesirable occurrence <u>resulting from forces that are largely outside human control</u>, strikes quickly with little or no warning, which causes or threatens serious disruption of life and property including death and injury to a large number of people, and requires therefore, mobilisation of efforts in excess of that which are normally provided by statutory emergency services.</i> Do you agree with this definition? Provide your own definition of a disaster, supporting your choice with a reason.		
Marking Scheme			
Part	Mark	Answer	Further Information
	1	States a clear opinion about the definition	
	2	Writes a relevant definition, aligned to the opinion stated	
	2	Supports the definition with a logical reason	

8. Constructed Response Questions

Content domain (Chapter name)	Human Settlements
Content Domain Learning outcome	CLO55. Defines settlements – urban and rural

Indicator	C71. Classifies urban and rural settlements based on the occupational activities performed.		
Cognitive level	Understand		
Thinking Process	Compare, evaluate		
Difficulty level	Medium		
Marks	2		
Time	4 minutes		
Item stem	<p>Human settlement in any particular area reflects human-land association and is affected by physical, economic and social factors.</p> <p>Region A and Region B are plain regions situated near a river. However, region A is a rural settlement and region B is an urban settlement.</p> <p>A. How would the association of land with the people of region A be different from that of region B? B. Suppose, after a few years, due to a massive drought, the land and other resources availability of region A is reduced. How might this affect the settlement of region A?</p>		
Marking Scheme			
Part	Mark	Answer	Further Information
	0.5 x 2	<p>A. The people of region A, a rural settlement, derive their life support or basic economic needs from land based primary economic activities such as agriculture, pasturing and forestry.</p> <p>However, the people of region B, an urban settlement, depend on land for strategic housing corporation, infrastructure and industries.</p> <p>The lack of land and other resources availability may cause people to migrate or temporarily move to another place for livelihood.</p>	
	1 x 1	Writes one relevant effect of drought in rural settlement	

9. Constructed Response Questions

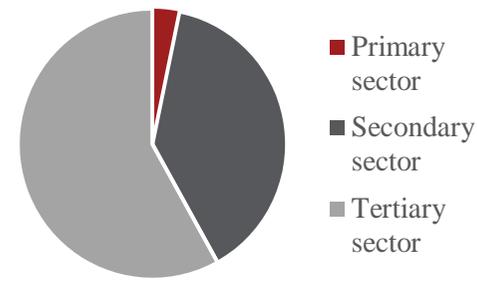
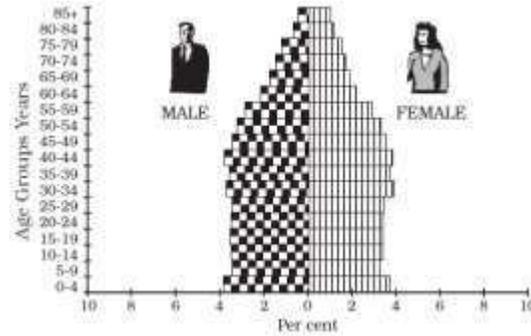
Content domain (Chapter name)	The World Population: Distribution, Density and Growth
Content Domain Learning outcome	CLO5. Summarises the concept of population growth CLO6. Explains the factors affecting population growth
Indicator	C5. Explains the term 'population growth' and justifies that population change in an area is an important indicator of economic development, social upliftment and historical and cultural background of the region. C6. Explains the three factors that influence population growth – births, deaths and migration.
Cognitive level	Understand
Thinking Process	Infer, explain
Difficulty level	Difficult
Marks	3
Time	5 minutes

Item stem

Look at the population composition of two countries.

	Age-Sex Pyramid	Occupational Structure
Country A		

Country B



1. Which of these two countries is most likely to be a less developed country? Give two reasons using the given data.
2. Suppose that the males from the less developed country migrate to developed country for better education and employment opportunities. How would this affect the age-sex pyramid of both the countries?

Marking Scheme

Part	Mark	Answer	Further Information
1	0.5 X 1	Identifies country A as the less developed country	
1	1 X 1	Gives 1 relevant reason for the identifying country A as less developed using age-sex pyramid	
1	1 X 1	Gives 1 relevant reason for the identifying country A as less developed using occupational structure	
2	0.5 X 1	Predicts the disbalance in age-sex pyramids due to male migration correctly	

10. Constructed Response Questions

Content domain (Chapter name)	Climate		
Content Domain Learning outcome	CLO116. Summarises the nature of Indian monsoon		
Indicator	C164. Describes the onset of and break in the monsoon in India.		
Cognitive level	Analyze		
Thinking Process	Attribute, Conclude		
Difficulty level	Difficult		
Marks	4		
Time	5 minutes		
Item stem	Justify the following statement: <i>The latitudinal position of India plays a key role in the onset of monsoon.</i>		
Marking Scheme			
Part	Mark	Answer	Further Information
	1	States the latitudinal position of India correctly, with respect to the Tropic of Cancer	
	3	Describes the role of temperature, pressure and winds with respect to the Tropic of Cancer	

12. ESSENTIAL IDEAS AND ASSESSMENTS

CLASS 11 – ASSESSMENTS BASED ON ESSENTIAL IDEAS

GRADE 11

Multiple-Choice Question

Chapter 1	Geography as a Discipline	
Essential Idea	Geography is a discipline of synthesis that studies and interprets the patterns of distribution and interrelationships between phenomena over space.	
Item stem + question	Sindhu is a trained geographer. Which is NOT an area of her expertise?	
	Option	Reason/Explanation for this option
Correct answer	Historical spread of diseases	Correctly understands that geographers are not expert epidemiologists.
Distractor 1	The features of the Earth and their distribution.	Misunderstands the basic role of geographers.
Distractor 2	Social and religious structures of different populations.	Misunderstands that social and religious structures are often built on geographical identities.
Distractor 3	Local interactions between the physical environment and humans.	Misunderstands that geography is a discipline that only works at large scales.

Free Response Question

Chapter 1	Geography as a Discipline	
Essential Idea	Geography studies and interprets the associations and inter-relationships between the phenomena resulting from the dynamic interaction between human beings and their physical environment	
Item stem + question	<p>A tribe in a remote island has not had any contact with humans for thousands of years. Aerial surveys of this tribe shows that they live in small houses made of thatched roof, and stone walls. They are hunter-gatherers and live off the plants and animals in and around the island. They are generally non-violent but are extremely wary of outsiders on their island.</p> <p>What role did geography play in creating and maintaining the traditions of this tribe?</p>	
Sample Answer and Marking Rubric		
Part	Description	Marks
Sample answer	<p>The island is remote. So for a long time, there would have very few humans to have visited this island. When the first humans reached the island and stayed back, and a small community would have formed. Due to the remote nature of the island (role of geography) this community remained tightly knit and isolated from the rest of the world. This may have also caused the island to remain devoid of modern technology.</p> <p>The island had sufficient resources (role of geography) to build shelter and for food. Moreover, the other animals and plants were not extremely dangerous to the human inhabitants of the island.</p>	3 Marks
Marking Rubric: Part 1	Remote nature of the island and its effects	2
Part 2	Natural resources on the island.	1

Multiple-Choice Question

Chapter 2	The origin and evolution of the Earth	
Essential Idea	Many natural processes led to the evolution of Earth from a rocky and barren object to a life-supporting planet.	
Item stem + question	“There is water on Mars today, but the Martian atmosphere is too thin for liquid water to exist for long on the surface.” This statement suggests the dense atmosphere of Earth was crucial in supporting life. Why?	
	Option	Reason/Explanation for this option
Correct answer	Life originated on Earth in oceans, and oceans would not have been formed without a dense atmosphere.	Understands that dense atmosphere led to liquid water collections which led to life on Earth.
Distractor 1	Life originated on Earth because the density of the atmosphere meant that there was sufficient oxygen.	Misunderstands that the early atmosphere had ample oxygen.
Distractor 2	There was life on Mars sometime in the past when the atmosphere there was as dense as it is on Earth.	Confuses a hypothesis for a cause.
Distractor 3	Water pools on early Earth helped to create the dense atmosphere around Earth.	Confuses cause and effect.

Free Response Question

Chapter 2	The origin and evolution of the Earth
Essential Idea	The Big Bang Theory helps us understand the origin of the universe, including the formation of stars, planets, and other celestial bodies.
Item stem + question	"We are made of star stuff", is what Physicist Carl Sagan had famously said. Explain this statement in the context of the Big Bang Theory.

Sample Answer and Marking Rubric

Part	Description	Marks
Sample answer	<p>The Big Bang Theory seeks to explain the beginning and evolution of the universe. At the moment before the Big Bang, all matter and energy were packed in an infinitely dense, and small ball. The Big Bang was this ball exploding and the contents expanding with time.</p> <p>Over time, the temperature dropped and the imbalance in energy and mass created galaxies of stars. Some stars went through their life cycle and gave rise to other astronomical objects like planets, satellites, asteroids, etc. One of the planets in one solar system in one of the galaxies is the Earth.</p> <p>This means that the same components that made the stars made all components of the Earth. And these components or chemicals also make up human beings.</p>	2
Marking Rubric: Part 1	Explains that all entities in the universe came from a single infinitely dense and small point before the Big Bang.	1
Part 2	Explains that humans are made of the same elements that exist naturally on the Earth.	1

Multiple-Choice Question

Chapter 3	Interior of the Earth	
Essential Idea	Understanding the effects of endogenic processes helps us understand the physiographic character of a region.	
Item stem + question	If an area is prone to earthquakes there are some other natural disasters are also likely to be common to these regions. Which of these is not an earthquake-related disaster?	
	Option	Reason/Explanation for this option
Correct answer	Forest Fires	Correctly understands that forest fires are not a direct cause of an earthquake.
Distractor 1	Avalanche	Misses the fact that if the region is near the mountains, earthquakes can cause avalanches or landslides.
Distractor 2	Tsunami	Misses the fact that if the region is near a sea or ocean earthquakes can cause tsunamis.
Distractor 3	Floods	Misses the fact that earthquakes can cause changes in the course of rivers which may lead to floods.

Free Response Question

Chapter 3	Interior of the Earth
Essential Idea	Understanding the effects of endogenic processes helps us understand the physiographic character of a region.
Item stem + question	<p>Vijaya stays on the western coast of India in the town of Karwar in the state of Karnataka. There was an earthquake near Karachi off the coast of Pakistan. The town of Karwar is more than 1300 kilometres away from Karachi. However, the town authorities sent out a warning for a possible tsunami event.</p> <p>What would have led the authorities to send out the warning?</p>

Sample Answer and Marking Rubric

Part	Description	Marks
Sample answer	<p>The earthquake occurred near the coastal city of Karachi. It occurred off the coast which means that the epicentre of the earthquake was in the sea.</p> <p>Now if the earthquake occurred at the ocean floor, there is a chance that the force will cause waves to rise, and which will lead to tsunamis in different places. Karachi is most vulnerable being the closest to the epicentre of the earthquake. But tsunamis can travel long distances and can affect coastlines in faraway lands. For example an earthquake near Sumatra led to tsunami-led damage in far off places like India and Sri Lanka.</p> <p>Knowing all this the authorities of Karwar were prudent in sending a tsunami warning to its citizens.</p>	3
Marking Rubric:	Identifies that the earthquake occurred in the Arabian Sea or at least in a water body.	1
Part 1		
Part 2	Reasons how an earthquake can cause tsunami in far off places.	2

Multiple-Choice Question

Chapter 4	Distribution of Oceans and Continents	
Essential Idea	The surface and interior of the Earth are not static but dynamic, and this has helped scientists understand the distribution of oceans and continents.	
Item stem + question	Scientists believe that the effects of the continental drift are still visible. What is an example in favour of this argument?	
	Option	Reason/Explanation for this option
Correct answer	The height of the Himalayas is still increasing.	Understands the increase in height of the Himalayas is an indication of the Indian plate and Eurasian plate merging.
Distractor 1	The global temperatures are rising.	Misunderstands the relationship between global temperature and tectonic plates.
Distractor 2	The ocean tides are not constant.	Misunderstands that ocean tides are related to tectonic plates.
Distractor 3	There are deep earthquake zones in the world.	Misunderstands that earthquakes are movements of the plates and so may be the effect of the continental drift.

Free Response Question

Chapter 4	Distribution of Oceans and Continents	
Essential Idea	The surface and interior of the Earth are not static but dynamic, and this has helped scientists understand the distribution of oceans and continents.	
Item stem + question	If there a massive earthquake along the boundary of the African and South American plates, what would be its possible effects on the Caribbean islands? (Write 2 possibilities.)	
Sample Answer and Marking Rubric		
Part	Description	Marks
Sample answer	<p>If there were a massive earthquake along the boundary of the African and South American plates, the following effects were possible:</p> <ol style="list-style-type: none"> 1. Tsunami in the Caribbean islands: this possibility is almost certain if the earthquake happened in the sea floor in the Atlantic Ocean. An earthquake in the Atlantic will surely cause massive waves which will almost certainly hit the Caribbean islands and the east coast of the Americas. 2. Shrinking or expanding of islands: the movements in the plates are likely to directly cause a long-term reduction or increase in the altitude of the island. If the plates move away from each other the islands are likely to sink, while if the plates net movement is toward each other, the islands are likely to rise. 	4
Marking Rubric: Part 1	For each possibility.	2

Multiple-Choice Question

Chapter 5	Geomorphic Processes	
Essential Idea	Geomorphic processes include endogenic and exogenic forces which cause physical stresses and chemical actions on earth materials and bring about changes in the configuration of the surface of the earth.	
Item stem + question	Sabbah went to a beach in Gujarat and saw that the beach was rocky and very difficult to walk on. She later went to a beach in Goa and saw that the beach was sandy and smooth, and it did not hurt her feet when she walked on it. What exogenic geomorphic process would have occurred previously on the Goa beach that made it sandy while it hasn't occurred on the Gujarat beach?	
	Option	Reason/Explanation for this option
Correct answer	Weathering	Understands that weathering of rocks over time causes sandy beaches.
Distractor 1	Soil erosion	Misunderstands the phenomenon of soil erosion.
Distractor 2	Landslides	Misunderstands that landslide cause rocks to turn into sand over time.
Distractor 3	Earthquakes	Misunderstands that earthquake is not related to forming sandy beaches. Also misremembers that earthquakes are endogenic geomorphic processes.

Free Response Question

Chapter 5	Geomorphic Processes	
Essential Idea	Geomorphic processes include endogenic and exogenic forces which cause physical stresses and chemical actions on earth materials and bring about changes in the configuration of the surface of the earth.	
Item stem + question	A river is flowing down a shallow gradient of altitude. List out and explain in one sentence three exogenic geomorphic processes occurring.	
Sample Answer and Marking Rubric		
Part	Description	Marks
Sample answer	As a river flows down a gradient of altitude the following geomorphic processes are occurring: <ol style="list-style-type: none">1. Gravity – the water in the river is flowing due to gravitational force. It is going from a higher altitude to a lower altitude.2. Weathering – as the water moves along the surface of the land it weathers the rocks it flows over.3. Erosion – if weathering is severe, it could lead to erosion of soil from one part of the river to a completely different location. The river water would carry the soil with it.	3
Marking Rubric: Part 1	Identifies and describes each geomorphic process	1

Multiple-Choice Question

Chapter 6	Landforms and their Evolution	
Essential Idea	Every landform on Earth goes through stages of transformation over time due to the continued action of geomorphic processes and agents.	
Item stem + question	What are the main agents causing transformation in landforms?	
	Option	Reason/Explanation for this option
Correct answer	Wind and water.	Understands that wind and water are the main agents causing landform transformations.
Distractor 1	Wind and human intervention.	Misunderstands the scale of impact that water has on causing landform transformations.
Distractor 2	Water and human intervention.	Misunderstands the scale of impact that water has on causing landform transformations.
Distractor 3	Wind, water and human intervention.	Misunderstands the scale of impact that human interventions are having on transforming landforms.

Free Response Question

Chapter 6	Landforms and their Evolution	
Essential Idea	Every landform on Earth goes through stages of transformation over time due to the continued action of geomorphic processes and agents.	
Item stem + question	Deltas of major rivers are extremely fertile. And as we move closer to the sea, the land becomes less fertile and mostly silty. Why?	
Sample Answer and Marking Rubric		
Part	Description	Marks
Sample answer	<p>Deltas are formed when there is a change in the altitude gradient. As the river flows over steep, rocky terrain it carries all with it coarse as well as the finer material. But as the altitude gradient becomes shallow, the river water cannot carry the coarse material with it, and these get deposited along the river.</p> <p>As the river gets closer to the sea, the altitude gradient becomes less, and the coarser load is dumped near the delta. This is what makes these areas fertile. However, the silty load is finer and is carried farther near the coast and sometimes into the sea. So this area will be silty and less fertile.</p>	3
Marking Rubric: Part 1	Explanation deltas are formed.	1.5
Part 2	Explanation of why different types of loads get deposited at different locations.	1.5

Multiple-Choice Question

Chapter 7	Composition and Structure of Atmosphere	
Essential Idea	The atmosphere consists of different layers with varying density and temperature.	
Item stem + question	The stratosphere is crucial for Earth because _____	
	Option	Reason/Explanation for this option
Correct answer	it contains the ozone layer.	Understands the location and role of ozone in maintaining temperature on Earth.
Distractor 1	it has almost constant temperature.	Misunderstands the role of the stratosphere.
Distractor 2	it contains electrically charged particles.	Misunderstands the role of the stratosphere.
Distractor 3	it is the layer of the atmosphere closest to Earth.	Misunderstands the role of the stratosphere.

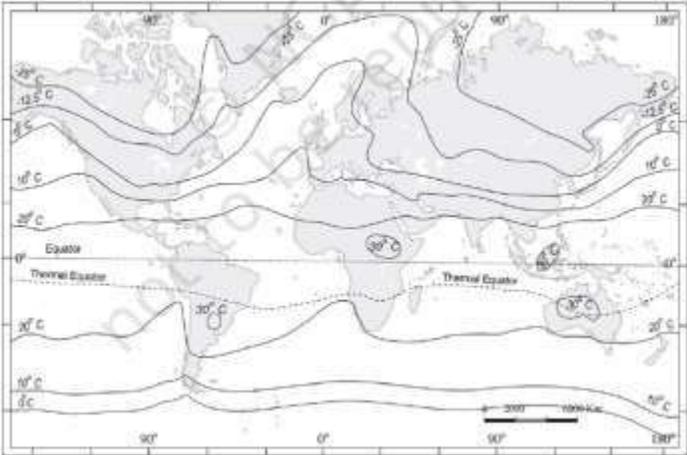
Free Response Question

Chapter 7	Composition and Structure of Atmosphere
Essential Idea	The atmosphere is composed of gases, water vapour and dust particles that play a key role in sustaining life on Earth.
Item stem + question	<p>The atmosphere on a planet similar to Earth in a different galaxy contains a thin layer of water vapor, thin layer of gases similar to those found in the Earth's atmosphere and a thick layer of dust particles.</p> <p>What will be the possibility of the planet sustaining life? What changes in the atmosphere would be needed to make it more conducive to sustaining life? (assume all other things similar to Earth)</p>

Sample Answer and Marking Rubric

Part	Description	Marks
Sample answer	<p>The possibility of the planet from the other galaxy sustaining life is slim given the conditions. The water vapour layer is important to buffer the temperature of the hot Sun. On Earth, the water vapour layer keeps the Earth at a reasonable temperature due to the water vapor layer. Also the gas layer which contains carbon dioxide also acts to maintain temperature on Earth. As these layers are really thin, life is probably not possible on the other planet.</p> <p>As mentioned above, if there are slightly thicker layers of gas and water vapour the possibility of the planet sustaining life may increase.</p>	3
Marking Rubric:	Evaluates the possibility of life	2
Part 1		
Part 2	Evaluates the possibility of life in the future	1

Multiple-Choice Question

Chapter 8	Solar Radiation, Heat Balance and Temperature	
Essential Idea 1	The process of heating and cooling of the atmosphere results in temperature distribution over the earth's surface.	
Item stem + question	<p>As seen from the image, most of peninsular India lies in the same temperature zone during January.</p>  <p>Figure 8.4 (a) : The distribution of surface air temperature in the month of January</p> <p>However, the winter temperature in Nagpur is at least 5o lower than Mumbai. Which factor plays the biggest role in this difference?</p>	
	Option	Reason/Explanation for this option
Correct answer	Distance from the sea	Understands that the major differences in temperature between a continental town and a coastal town is going to be due to the local sea effects on the coastal town.
Distractor 1	Latitude	Misunderstands the extent of difference between the latitudes at which Nagpur and Mumbai lie.

Distractor 2	Altitude	Misunderstands the extent of difference between the altitudes of Nagpur and Mumbai.
Distractor 3	Global climate change	Misunderstands the effects of climate change.

Free Response Question

Chapter 8	Solar Radiation, Heat Balance and Temperature
Essential Idea	The process of heating and cooling of the atmosphere results in temperature distribution over the earth's surface.
Item stem + question	Keerthi stays in Manali. She came to Chennai for summer vacation. She was feeling hot and sultry which was very different from Manali. Deepthi, who is her cousin explained her the difference. Can you think and write what has Deepthi told Keerthi?

Sample Answer and Marking Rubric

Part	Description	Marks
Sample answer	<p>Since Earth rotates around Sun, solar radiations have a little impact on temperatures. However, the temperature of air at any place is influenced by (i) the latitude of the place; (ii) the altitude of the place; (iii) distance from the sea, the air-mass circulation; (iv) the presence of warm and cold ocean currents; (v) local aspects.</p> <p>The atmosphere is indirectly heated by terrestrial radiation from below. Therefore, the places near the sea-level record higher temperature than the places situated at higher elevations. The temperature generally decreases with increasing height. Another factor that influences the temperature is the location of a place with respect to the sea. Compared to land, the sea gets heated slowly and loses heat slowly. Land heats up and cools down quickly. Therefore, the variation in temperature over the sea is less compared to land. The places situated near the sea come under the moderating influence of the sea and land breezes which moderate the temperature. The places, which come under the influence of warm airmasses experience higher temperature and the places that come under the influence of cold air-masses experience low temperature. Similarly, the places located on the coast where the warm ocean currents flow record higher temperature than the places located on the coast where the cold currents flow. Due to all the above-mentioned factors Chennai is situated closer to a sea whereas Manali is away from sea and also closer to mountains. Hence there is a difference in the temperature</p>	5
Marking Rubric: Part 1	Factors effecting temperature	1

Part 2	Explanation of factors	2
Part 3	Connecting it to the question	2

Multiple-Choice Question

Chapter 9	Atmospheric Circulation and Weather Systems	
Essential Idea	Differences in atmospheric pressure set air in motion, known as wind, which is subject to different forces.	
Item stem + question	As we go higher in altitude like to a hill station above 1000 metres, we feel breathless faster or more easily. What trait of the atmosphere is responsible for this feeling?	
	Option	Reason/Explanation for this option
Correct answer	Atmospheric pressure reduces with altitude.	Understands that reduced pressure means reduced oxygen in every breath and hence we get breathless more easily on hill stations.
Distractor 1	Atmospheric temperature reduces with altitude.	Misunderstands that reduction in temperature causes breathlessness.
Distractor 2	Atmosphere is cleaner at the hill station due to less population and pollution.	Misunderstands that lack of pollution hinders breathing easily.
Distractor 3	Hill stations receive harsher sunlight.	Misunderstands that sunlight has a bearing on our breathing at hill stations.

Free Response Question

Chapter 9	Atmospheric Circulation and Weather Systems	
Essential Idea	The pattern of planetary winds depends on five main factors and influences the earth's climate.	
Item stem + question	Pooja's vacation got cancelled as her travel agent told her the weather has been extremely unpredictable in the last few days. While she made a plan, her research and weather forecast did not give any such information. Her father told her that could be because of the planetary winds. Can you explain the factors that influence planetary winds and earth's climate which did not let pooja's vacation happen?	
Sample Answer and Marking Rubric		
Part	Description	Marks
Sample answer	<p>The factors that influence planetary winds largely depends on the following five factors.</p> <ul style="list-style-type: none"> (i) latitudinal variation of atmospheric heating (ii) emergence of pressure belts (iii) the migration of belts following apparent path of the sun (iv) the distribution of continents and oceans (v) the rotation of earth. <p>The pattern of the movement of the planetary winds is called the general circulation of the atmosphere. The general circulation of the atmosphere also sets in motion the ocean water circulation which influences the earth's climate.</p> <p>These factors result in causing changes in the earth's climate like heavy rainfall, droughts or floods. The place which pooja wanted to go might have been affected with one of these changes and hence she had to cancel her plans</p>	5
Marking Rubric:	Factors influencing planetary winds	2

Part 1		
Part 2	Changes in earth's climate	2
Part 3	Connecting these factors and changes to pooja's situation	1

Multiple-Choice Question

Chapter 10	Water in the Atmosphere	
Essential Idea	Evaporation and condensation of water vapour in the atmosphere lead to different forms of moisture and precipitation.	
Item stem + question	What is the role of dust particles in water cycling through the atmosphere?	
	Option	Reason/Explanation for this option
Correct answer	They act as nuclei around which condensation of water vapour can take place.	Understands that dust or particles of pollution can act as the nucleus around which the vapour can condense.
Distractor 1	They act as support for dew formation.	Misunderstands the role of dust particles in dew formation.
Distractor 2	They provide a surface for liquid water to evaporate from.	Misunderstands what evaporation is.
Distractor 3	They act as filters to purify the water that eventually becomes rain.	Misunderstands the entire process of condensation and rainfall.

Free Response Question

Chapter 10	Water in the Atmosphere
Essential Idea	Evaporation and condensation of water vapour in the atmosphere lead to different forms of moisture and precipitation
Item stem + question	Kate woke up early morning during a winter morning. She noticed that the trees, vehicles and grass were all wet. It had not rained during the night. Why do you think they are wet?

Sample Answer and Marking Rubric

Part	Description	Marks
Sample answer	During winter nights when there is high relative humidity and low winds, there is a possibility of dew forming. Formation of dew is due to condensation of water vapour on cool solid objects like leaves or stones or vehicles. During winters the temperatures of these objects falls, and the water vapour can condense on them. This could be a reason why Kate saw that everything was wet.	2
Marking Rubric: Part 1	Explains when and how dew is formed.	2

Multiple-Choice Question

Chapter 11	World Climate and Climate Change	
Essential Idea	Many factors are causing climate change, which in turn is leading to global warming that is adversely affecting life-supporting systems.	
Item stem + question	Increase in greenhouse gases like carbon dioxide, ozone, methane is harmful for life on Earth. Why?	
	Option	Reason/Explanation for this option
Correct answer	These gases help in retaining heat on Earth.	Understands that greenhouse gases help in retaining heat and an increase in these gases will lead to more heat being retained.
Distractor 1	These gases are poisonous for life on Earth.	Misunderstands the quantities of these gases in the atmosphere.
Distractor 2	Methane is flammable and so dangerous to life on Earth.	Misunderstands the role of methane as a greenhouse gas.
Distractor 3	(increase in greenhouse gases is not harmful to life on Earth)	Misunderstands the role of greenhouse gases

Free Response Question

Chapter 11	World Climate and Climate Change
Essential Idea	Koeppen's Scheme of Classification of Climate recognizes five major climatic groups that help us study the world's climate.
Item stem + question	The peak of the Western Ghats are in the tropical monsoon climate while just a few kilometres east of it, the city of Pune is in the tropical wet and dry zone. Explain this phenomenon.

Sample Answer and Marking Rubric

Part	Description	Marks
Sample answer	The Western Ghats line the western coast of peninsular India. The south-western winds from the Arabian Sea bring rains to these regions. As the rain clouds meet the Western Ghats, they need to go higher which causes rains on the Western Ghats. As the clouds move eastward over the Ghats, they come down and precipitation decreases. As Pune is east of the Western Ghats, it is somewhat on the leeward side of the Ghats. So though the Western Ghats and Pune are very close by, the rains that these regions are very different in terms of volume and frequency. As the tropical monsoon climate is characterised by heavy monsoonal rains and a short dry period, the Western Ghats fall in that climatic type. However, Pune gets rains during the late summer and usually has a dry summer putting in the tropical wet and dry climatic type.	3
Marking Rubric:	Explains the rain shadow effect for the difference in the amount and frequency of rains.	2
Part 1		
Part 2	Makes the connection between the amount and frequency of rains received with the climatic types.	1

Multiple-Choice Question

Chapter 12	Water (Oceans)	
Essential Idea	The ocean floors can be divided into four major divisions while also having minor and major relief features.	
Item stem + question	What would atolls which start at the ocean floor and rise above the ocean level commonly be known as?	
	Option	Reason/Explanation for this option
Correct answer	Islands	Understands that when relief features from the ocean floor rise above the ocean level they will be islands.
Distractor 1	Ridges	Misunderstands how relief features of the ocean work.
Distractor 2	Seamounts	Misunderstands how relief features of the ocean work.
Distractor 3	Guyots	Misunderstands how relief features of the ocean work.

Free Response Question

Chapter 12	Water (Oceans)
Essential Idea	Oceans are characterised by horizontal and vertical variations in temperature and salinity.
Item stem + question	Banks towards Arabian sea can make good amount of salt and we find salt factories near these areas which is not the case for Bay of Bengal. Why do you think we find more factories towards Arabian sea?

Sample Answer and Marking Rubric

Part	Description	Marks
Sample answer	<p>There are certain factors that affect the salt levels of water. Certain factors affect ocean salinity like:</p> <p>(i) The salinity of water in the surface layer of oceans depend mainly on evaporation and precipitation.</p> <p>(ii) Surface salinity is greatly influenced in coastal regions by the freshwater flow from rivers, and in polar regions by the processes of freezing and thawing of ice.</p> <p>(iii) Wind also influences salinity of an area by transferring water to other areas.</p> <p>(iv) The ocean currents contribute to the salinity variations.</p> <p>The average salinity of the Indian Ocean is 35 ‰. Low salinity is observed along the coasts of the Bay of Bengal due to the large influx of river water as compared to the Arabian Sea. So, there is more capacity to obtain salt from the Arabian Sea as compared to the Bay of Bengal.</p>	3
Marking Rubric:	Factors effecting Salinity	2
Part 1		
Part 2	Reasons why Bay of Bengal has lower salinity than Arabian Sea.	1

Multiple-Choice Question

Chapter 13	Movements of Ocean Water	
Essential Idea	The physical characteristics of ocean water, like temperature, salinity, density, and the external forces like of the sun, moon and the winds influence its movement.	
Item stem + question	Shanaya and her friends want to go to the beach. But they need to decide what time to go to the beach so that the tide is coming in and there is water around the beach. Knowing what information will help them the most?	
	Option	Reason/Explanation for this option
Correct answer	The location of the moon with respect to Earth.	Understands that the location of the moon has the highest influence in changing the effect of gravity on tides.
Distractor 1	The centrifugal force applied by the Earth due to its rotation.	Misunderstands that centrifugal force can change in a major way at different locations.
Distractor 2	Temperature of the ocean.	Misunderstands that temperature has a role to play in tide schedules.
Distractor 3	Location of the Sun with respect to Earth.	Misunderstands the importance of the Sun in causing a change in the effect of gravity on the tides.

Free Response Question

Chapter 13	Movements of Ocean Water
Essential Idea	Ocean tides and ocean currents have direct and indirect influences on human life.

Item stem + question	Arjun's uncle, Samuel stays in a village on the coast. He goes into ocean on few days and rest of the days he works from the shore. Arjun was confused on why his uncle does different things as his jobs. Why do you think Samuel goes into ocean some days and on other days he spends on the shore? (answer keeping in mind the ocean waves and tides)	
Sample Answer and Marking Rubric		
Part	Description	Marks
Sample answer	<p>An ocean consists of three different types of motions – waves, tides, and ocean currents. Each of these occur differently and they have different impact on the earth and people who depend on oceans for their livelihood. When it comes to Samuel who goes into ocean only on few days, this is because of the tides which decides the navigation. When the tides are low or normal or depending on the tidal heights one can navigate in the ocean smoothly, otherwise navigation becomes very dangerous.</p> <p>When Samuel cannot go into the ocean he works from the shore. Ocean currents are of two types – cold and warm ocean currents. When they both get mixed, they become the best fishing grounds. If the ocean near his village produces a mixture of cold and warm ocean currents, best fishing grounds are formed and Samuel can fish from the shore.</p>	4
Marking Rubric:		
Part 1	Why does Samuel go into ocean?	2
Part 2	Why does he do fishing?	2

Multiple-Choice Question

Chapter 14	Biodiversity and Conservation
Essential Idea	Biodiversity has contributed in many ways to the development of human culture and must be conserved.

Item stem + question	For which of these is biodiversity not important?	
	Option	Reason/Explanation for this option
Correct answer	Debating.	Understands that biodiversity is not directly linked to humans' ability to debate.
Distractor 1	Scientific inquiry into how humans evolved.	Misunderstands that human evolution is different from the diversity of the rest of the living world.
Distractor 2	Having a balanced meal.	Misunderstands the source of the diversity in nutrients of a meal.
Distractor 3	Tourism.	Misunderstands the need for biodiversity in tourism.

Free Response Question

Chapter 14	Biodiversity and Conservation	
Essential Idea	Biodiversity has contributed in many ways to the development of human culture and must be conserved.	
Item stem + question	Preeti saw a movie which showed her stopping of construction in a forest. The construction will end the species of elephants and hence the local tribes did not allow. What kind of effects will a construction have in the forest?	
Sample Answer and Marking Rubric		
Part	Description	Marks
Sample answer	Biodiversity is important for human existence. All forms of life are so closely interlinked that disturbance in one give rise to imbalance in the others. Here if forests are replaced by construction, elephants will not have place to	5

	<p>live and reproduce their next generation. In which case the elephants will get extinct. If species of plants and animals become endangered, they cause degradation in the environment, which may threaten human being's own existence. There is an urgent need to educate people to adopt environment-friendly practices and reorient their activities in such a way that our development is harmonious with other life forms and is sustainable. The critical problem is not merely the conservation of species nor the habitat but the continuation of process of conservation. Few steps for biodiversity conservation are:</p> <p>(i) Efforts should be made to preserve the species that are endangered.</p> <p>(ii) Prevention of extinction requires proper planning and management.</p> <p>(iii) Varieties of food crops, forage plants, timber trees, livestock, animals, and their wild relatives should be preserved;</p> <p>(iv) Each country should identify habitats of wild relatives and ensure their protection.</p> <p>(v) Habitats where species feed, breed, rest and nurse their young should be safeguarded and protected.</p> <p>(vi) International trade in wild plants and animals be regulated</p>	
Marking Rubric:	Explanation of biodiversity	1
Part 1		
Part 2	Relation to the question	2
Part 3	Measures for conservation	2

CLASS 12 – ASSESSMENT ITEMS BASED ON ESSENTIAL IDEAS

Multiple-Choice Question

Chapter 1	Human Geography: Nature and Scope (Fundamentals of Human Geography)
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Essential Idea	Human geography is highly inter-disciplinary in nature and studies the inter-relationship between the physical environment and sociocultural environment created by human beings through mutual interaction.	
Item stem + question	<p><i>The core concern of Geography as a discipline is to understand the earth as home of human beings and to study all those elements which have sustained them.</i></p> <p>Based on this, which one of the following statements is NOT true of Geography?</p>	
Correct answer	Geography is relevant only in places that are technologically undeveloped.	Student understands that technological developments are not the only elements that sustain human beings.
Distractor 1	Events that take place in outer space cannot be studied geographically.	Student does not understand that events in outer space have a tremendous effect on sustenance of life on earth.
Distractor 2	Geography includes the study of only physical features of the earth, regardless of human behaviour and culture.	Student does not understand that social and cultural aspects of life are integral to sustaining life on earth.
Distractor 3	Geography includes only phenomena that occur above the surface of the earth and not below it.	Student does not understand that events that take place below the earth's surface have a huge impact on life on earth.

Free Response Question

Chapter 1	Human Geography: Nature and Scope (Fundamentals of Human Geography)
Essential Idea	Human geography is highly inter-disciplinary in nature and studies the inter-relationship between the physical environment and sociocultural environment created by human beings through mutual interaction.
Item stem + question	<p><i>In the first two years of the COVID-19 pandemic, healthcare facilities advanced from appointment-based to drive-through to easily available home- testing kits to diagnose the infection. Bluetooth and GPS technology, as well as social media and instant messaging, were used to monitor individuals' health in isolation, keeping them healthy and safe.</i></p> <ol style="list-style-type: none"> 1. Does this example show determinism, possibilism or neo-determinism? Why? 2. Using this example, explain how knowledge of nature and technology play an important role in humanising nature.

Sample Answer + Marking Rubric

Part	Description	Marks
Sample Answer	<p>1. The example shows possibilism. This is because, in this case, humans brought changes to the environment by increasing the capacity to meet the largely increased needs and demands.</p> <p>2. In the case of the COVID-19 pandemic, with the passage of time and a better understanding of the nature of the coronavirus through scientific research and studies, human beings were pushed to develop and adapt to technology such as vaccination and home-testing kits. Hence, knowledge about nature is extremely important for developing technology. Technology helped tackle the problem. Human beings make use of such opportunities by nature, and slowly, nature gets humanised.</p>	-
Marking Scheme:	States possibilism as the correct answer	0.5
Part 1	Provides a relevant reason for choosing possibilism	0.5
Part 2	Explains the importance of technological development in the case of the COVID-19 pandemic	1

Part 2

Explains the importance of knowledge about coronaviruses in helping to develop technology

1

Multiple-Choice Question

Chapter 2	The World Population: Distribution, Density and Growth (Fundamentals of Human Geography)							
Essential Idea	Patterns of population distribution and density help us understand the demographic characteristics of an area.							
Item stem + question	<p>Look at the population of city A and city B.</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th></th> <th>Population</th> </tr> </thead> <tbody> <tr> <td>City A</td> <td>5,30,820</td> </tr> <tr> <td>City B</td> <td>1,32,705</td> </tr> </tbody> </table> <p>Which of these is most likely to be true about them?</p>			Population	City A	5,30,820	City B	1,32,705
	Population							
City A	5,30,820							
City B	1,32,705							
Correct answer	City A has more easily available fresh water than City B.	Student understands that people prefer to live in areas where fresh water is easily available.						
Distractor 1	City A is much hillier than City B.	Student does not understand that people prefer living on flat plains and gentle slopes.						
Distractor 2	City A has fewer schools and hospital facilities than City B	Student does not understand that good civic amenities and the attraction of a better life draw people to the cities.						
Distractor 3	City A has fewer job opportunities than City B.	Student does not understand that a place that provides job opportunities will attract large numbers of people.						

Free Response Question

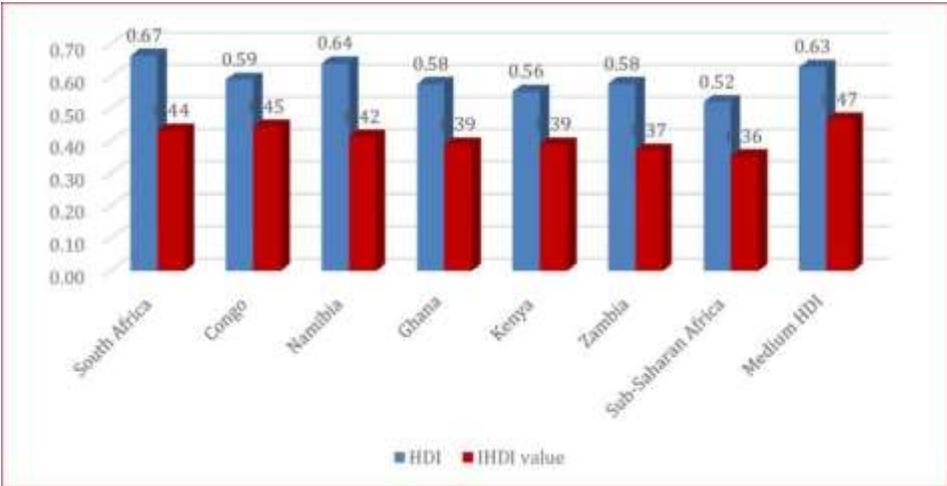
Chapter 2	The World Population: Distribution, Density and Growth (Fundamentals of Human Geography)	
Essential Idea	Population change is closely linked to the economic development and social upliftment of the region.	
Item stem + question	<p>There are two countries—Avalon and Averno. In Avalon, the population increased by 2% from 1980 to 2020. During this period, its GDP increased by 5%. In Averno, the population increased by 4% from 1980 to 2020, during which period its GDP increased by 0.5%.</p> <p>Using examples of Avalon and Averno, explain how the growth rate of the population may affect the economic development of a country in different ways.</p>	
Sample Answer + Marking Rubric		
Part	Description	Marks
Sample Answer	<p>The economic development of a country is directly dependent upon the resource base available in that country.</p> <p>If a country like Avalon has a proper balance in the increase in population and resource availability, which means the number of people is determined by the availability of resources, then it will continue on the path of economic development.</p> <p>If a country like Averno has a rapid increase in population, it can exert great pressure on available resources that ultimately hinders economic development in the form of consequences such as food insecurity, lack of proper housing and health facilities, unemployment, pressure on agricultural land, etc.</p>	-
Marking Scheme:	Explains the meaning of economic development	1
	Explains the conditions in which increase in population causes smooth increase in economic development with the example of Avalon	1

	Explains the conditions in which increase in population causes hinderance in the increase in economic development with the example of Averno	1
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Multiple-Choice Question

Chapter 3	Human Development (Fundamentals of Human Geography)	
Essential Idea	Human development is development that enlarges people’s choices and improves their lives, and is supported by four pillars.	
Item stem + question	<p>The calculation of the Human Development Index score combines three major indicators: health, education and access to resources.</p> <p>Which of these is a contributing factor for the decrease in the Human Development Index score?</p>	
Correct answer	5% and 3% increases in military and social spending, respectively	Student understands places with low levels of human development tend to spend more on defence rather than social sectors.
Distractor 1	Change in death rate from 40/1000 to 20/1000	Student does not understand decrease in death rate indicates a higher Human Development Index score.
Distractor 2	Change in adult literacy rate from 48.2 % to 74.4 %	Student does not understand increase in literacy rate indicates a higher Human Development Index score.
Distractor 3	5% increase in income per capital	Student does not understand increase in GDP indicates a higher Human Development Index score.

Free Response Question

Chapter 3	Human Development (Fundamentals of Human Geography)																											
Essential Idea	Looking at the human development index and human poverty index together gives an accurate picture of the human development situation in a country and also helps make international comparisons.																											
Item stem + question	<p>Inequality-adjusted Human Development Index combines a country's Human Development Index with the "discount" due to inequality involved in each dimension.</p> <p>Look at the graph representing the Human Development Index (HDI) and the Inequality-adjusted Human Development Index (IHDI) of African countries.</p>  <p>The bar chart displays the Human Development Index (HDI) and the Inequality-adjusted Human Development Index (IHDI) for various African countries and a medium HDI benchmark. The y-axis represents the index value, ranging from 0.00 to 0.70. The x-axis lists the countries and the medium HDI. For each country, there are two bars: a blue bar for HDI and a red bar for IHDI. The values are: South Africa (HDI: 0.67, IHDI: 0.44), Congo (HDI: 0.59, IHDI: 0.45), Namibia (HDI: 0.64, IHDI: 0.42), Ghana (HDI: 0.58, IHDI: 0.39), Kenya (HDI: 0.56, IHDI: 0.39), Zambia (HDI: 0.58, IHDI: 0.37), Sub-Saharan Africa (HDI: 0.52, IHDI: 0.36), and Medium HDI (HDI: 0.63, IHDI: 0.47).</p> <table border="1"><thead><tr><th>Country/Category</th><th>HDI</th><th>IHDI value</th></tr></thead><tbody><tr><td>South Africa</td><td>0.67</td><td>0.44</td></tr><tr><td>Congo</td><td>0.59</td><td>0.45</td></tr><tr><td>Namibia</td><td>0.64</td><td>0.42</td></tr><tr><td>Ghana</td><td>0.58</td><td>0.39</td></tr><tr><td>Kenya</td><td>0.56</td><td>0.39</td></tr><tr><td>Zambia</td><td>0.58</td><td>0.37</td></tr><tr><td>Sub-Saharan Africa</td><td>0.52</td><td>0.36</td></tr><tr><td>Medium HDI</td><td>0.63</td><td>0.47</td></tr></tbody></table> <p>Source: https://www.researchgate.net/profile/Coretta-Jonah/publication/345772363/figure/fig1/AS:957097650962432@1605201270130/Human-Development-Index-and-Inequality-adjusted-Human-development-Index-for-South-Africa.png</p> <p>A. Is Human Development Index a reliable measure of development of a country? Give one reason.</p>	Country/Category	HDI	IHDI value	South Africa	0.67	0.44	Congo	0.59	0.45	Namibia	0.64	0.42	Ghana	0.58	0.39	Kenya	0.56	0.39	Zambia	0.58	0.37	Sub-Saharan Africa	0.52	0.36	Medium HDI	0.63	0.47
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B. How does poverty play a role in showing real figures of Human Development Index of a country?

Sample Answer + Marking Rubric

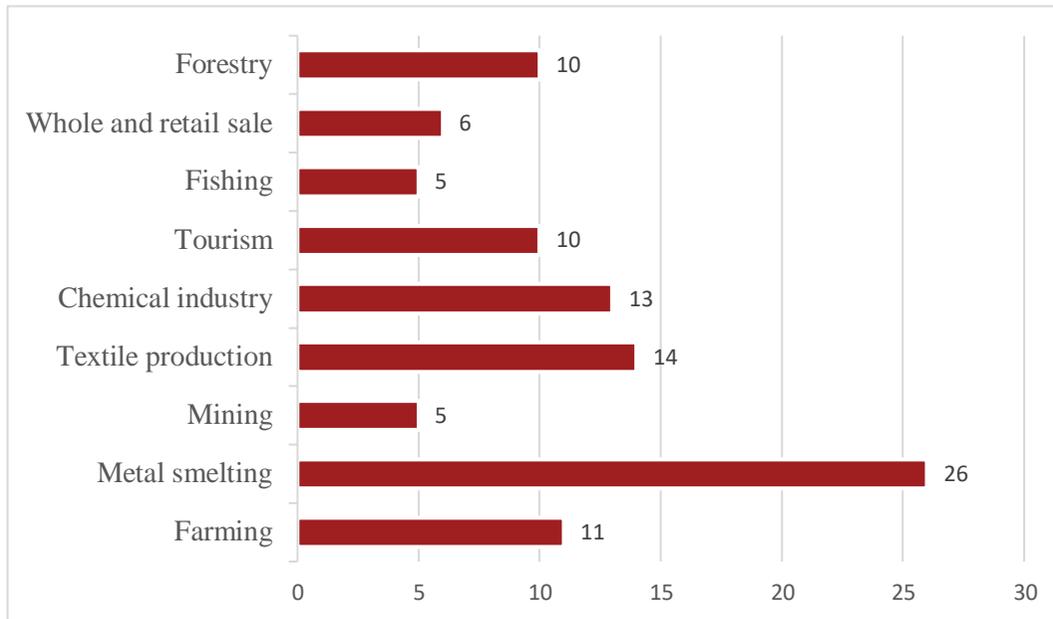
Part	Description	Marks
Sample Answer	<p>A. The Human Development Index reflects what has been achieved in the key areas of human development. Yet it is not the most reliable measure. This is because it does not say anything about the unequal distribution in population due to poverty and other disadvantageous factors, as shown in the graph.</p> <p>B. Looking at both human poverty and human development index together gives an accurate picture of the human development situation in a country. The human poverty index measures the shortfall in human development by taking into account probability of not surviving till the age of 40, the adult illiteracy rate, the number of people who do not have access to clean water, and the number of small children who are underweight.</p>	-
Marking Scheme: Part A	Mentions that only Human Development Index is not reliable	1
Part A	Gives a reason to support the answer	1
Part B	Explains how poverty index along with development index shows the true picture of human development	1

Multiple-Choice Question

Chapter 4	Primary Activities (Fundamentals of Human Geography)
Essential Idea	Primary activities use earth's resources such as land, water, vegetation, building materials and minerals.

Item stem + question

Look at the chart showing the occupational composition of a country.



Number of workers

Which of these is correct about the economy of the country?

Correct answer

31% of workforce is engaged in the primary sector.

Student understand that farming, forestry, mining and fishing contribute to primary sector.

Distractor 1

21% of the workforce is engaged in the primary sector.

Student does not understand that mining and fishing contribute to primary sector.

Distractor 2	Metal smelting employs the largest workforce in the primary sector.	Student does not understand metal smelting does not belong to the primary sector.
Distractor 3	Forestry employs the largest workforce in the primary sector.	Student does not understand that farming forms a part of the primary sector.

Free Response Question

<p>Chapter 4</p>	<p>Primary Activities (Fundamentals of Human Geography)</p>	
<p>Essential Idea</p>	<p>Physical and social factors affect the types primary activities of different regions.</p>	
<p>Item stem + question</p>	<p>Study the images showing two forms of animal rearing.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Rearing type A</p> </div> <div style="text-align: center;">  <p>Rearing type B</p> </div> </div> <p>Identify the two types of rearing shown above. Explain how geographical factors and technological development play a role in these types of herding.</p>	

Sample Answer + Marking Rubric

Part	Description	Marks
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Sample Answer	<p>Rearing type A is nomadic herding and rearing type B is commercial livestock rearing.</p> <p>Geographical factors play an important role in nomadic herding, as herders move from one place to another along with their livestock, depending on the amount and quality of pastures and water. Geographical factors also determine migration from mountain pastures to plain areas during winters and vice versa during summers.</p> <p>On the other hand, technological developments play a significant role in commercial livestock herding, where emphasis is on breeding, genetic improvement, disease control and health care of the animals. Additionally, products such as meat, wool, hides and skin are processed and packed scientifically and exported to different world markets.</p>	-
Marking Scheme:	Identifies rearing type A as nomadic rearing and rearing type B as commercial livestock rearing. (0.5 marks each)	1
Part 1		
Part 2	Explains the role of geographical factors in nomadic herding	2
Part 3	Explains the role of technological developments in commercial livestock rearing	2

Multiple-Choice Question

Chapter 5	Secondary Activities (Fundamentals of Human Geography)
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Essential Idea	Manufacturing industries are classified on the basis of their size, input, output and ownership.	
Item stem + question	<p>Look at the images of two different types of industries.</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="371 233 1162 810">  </div> <div data-bbox="1167 233 1957 810">  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div data-bbox="371 810 1162 863" style="text-align: center;">Industry A</div> <div data-bbox="1167 810 1957 863" style="text-align: center;">Industry B</div> </div> <p>Which of these is incorrect about the differences between these industries?</p>	
Correct answer	Industry A involves enormous energy, and industry B involves simple power-driven machines.	Student understands that cottage industry involves simple power-driven machines and large-scale industry involves enormous energy-driven machines.
Distractor 1	Both industries differ in amount of capital invested and volume of production.	Student does not understand that cottage industries require significantly lower investment and produce lower volumes than large-scale industries.

Distractor 2	Both industries differ in the number of workers employed.	Student does not understand that large-scale industries employ large numbers of workers, while cottage industries are usually run by a handful of people.
Distractor 3	Industry B involves a large market larger than industry A	Student does not understand that large-scale industries have larger markets than cottage industries.

Free Response Question

Chapter 5	Secondary Activities (Fundamentals of Human Geography)	
Essential Idea	Secondary activities add value to natural resources by transforming raw materials into valuable products.	
Item stem + question	<p><i>Farmers grow cotton plants, and the cotton bolls are harvested from them. Cotton bolls have limited use. In the textile industry, cotton bolls are transformed into yarn through processing, which is then used for making clothes through manufacturing.</i></p> <p>Both the primary sector and the secondary sector involve natural resources. How is the role of natural resources different in primary and secondary industries? Explain with reference to the example provided.</p>	
Sample Answer + Marking Rubric		
Part	Description	Marks
Sample Answer	The primary sector has natural resources as an output, whereas the secondary sector uses them as an input. The primary sector such as farming extracts and gathers natural resources. The secondary sector such as cotton textile transforms those resources into products to put them to use for a user to buy. Secondary activities add value to natural resources by transforming raw materials into valuable products through various processes.	-
Marking Scheme: Part A	Explains the role of natural resources in each sector	1
Part B	Explains using the example of cotton	1

Multiple-Choice Question

Chapter 6	Tertiary and Quaternary Activities (Fundamentals of Human Geography)	
Essential Idea	Tertiary activities include both production and exchange, and skilled manpower is an important component of the service sector.	
Item stem + question	<p>In a developed economy, the majority of workers are employed in tertiary activities, and a moderate proportion is employed in the secondary sector.</p> <p>Which of these activities will help to shift a country from a developing to a developed country?</p>	
Correct answer	Increase in the number of lawyers and primary health professionals	Student understands service providers engaged in the tertiary sector positively influences economic growth.
Distractor 1	Decrease in percentage of large wholesale stores and trading services	Student does not understand that a decrease in trade would mean a decrease in the tertiary sector, which negatively influences economic growth.
Distractor 2	Increase in the number of workers in the cotton textile industry	Student does not understand that industry and manufacturing form part of the secondary sector, which is a feature of a developing country.
Distractor 3	Increase in the number of farmers practising mixed farming	Student does not understand that farming is an engagement in the primary sector, which is a feature of an underdeveloped country.

Free Response Question

Chapter 6	Tertiary and Quaternary Activities (Fundamentals of Human Geography)
Essential Idea	Quaternary activities centre around research and development, involving services that require specialised knowledge and technical skills.
Item stem + question	<p>Kriti is a social science teacher. On many occasions, she engages in the work of researching and developing innovative teaching methods to make students understand complex concepts in a fun way.</p> <p>A. Using the above example, explain if the same type of work can belong to two sectors of economic activity. Provide one more example.</p> <p>B. What role does this play in economic development?</p>

Sample Answer + Marking Rubric

Part	Description	Marks
Sample Answer	<p>A. Quaternary sector is an improved form of tertiary sector. For example, the teacher is a service provider and can be considered to be working in the tertiary sector. But when the job demands for information production and research, it shifts towards the quaternary sector,</p> <p>Another example is a cardiac surgeon, who is skilled at performing procedures and treating patients, and can be involved in research and experimentation to innovate techniques to treat congenital heart diseases.</p> <p>B. The quaternary sector, along with the tertiary sector, replacing all primary and secondary employment, is the basis for economic growth. They are often referred to as 'gold collar' professions, and they are important in the structure of an advanced economy.</p>	-
Marking Scheme:	Explains how the tertiary and quaternary sectors often overlap	1
Part A	Provides an appropriate example	1
Part B	Explains the role of tertiary and quaternary professions as an indicator of economic development	1

Multiple-Choice Question

Chapter 7	Transport and Communication (Fundamentals of Human Geography)	
Essential Idea	Living standards and quality of life depend on efficient transportation, communication and trade.	
Item stem + question	<p>Bengaluru city roads suffer from chronic traffic congestion, especially during peaks occurring during the rush hour before and after work.</p> <p>Which of these would you, as a member of the Bangalore municipal corporation, suggest implementing to cope with the traffic situation in a sustainable way?</p>	
Correct answer	Encouraging public transport	Student understands improvements to public transport are a sustainable way of coping with traffic.
Distractor 1	Blocking a few bus lanes	Student does not understand that blocking bus lanes would increase congestion.
Distractor 2	Increasing private cars	Student does not understand that increasing private transport would lead to more traffic problems.
Distractor 3	Blocking flyover and tunnels	Student does not understand that blocking flyovers and tunnels would increase congestion.

Free Response Question

Chapter 7	Transport and Communication (Fundamentals of Human Geography)
Essential Idea	Transport, communication and trade establish links between producing centres and consuming centres.
Item stem + question	<p>Area A and Area B are on the same island.</p> <p>Area A is a rural area where most people are engaged in mining. The area has an abundance of iron ore.</p> <p>Area B is an industrial area about 1000 km away from Area A. Area B has different factories that manufacture heavy machinery and steel products.</p> <p>Suggest which different economic modes of transport are appropriate to make raw materials available for the factories of Area B from the mining region of Area A. Give reasons.</p>

Sample Answer + Marking Rubric

Part	Description	Marks
Sample Answer	<p>Since iron ore is a heavy material, road and railway transport would be the most appropriate and economical modes of transport for the distance of 1000 km on land.</p> <p>The roads that offer door-to-door service can be used to transport extracted iron ore from the mining region of Area A to the nearby railways. Rails can be used to transport bulky and heavy goods such as iron ore over distances as long as 1000 km. Again, road transport can be used to transport iron ore from railways to door-to-door to factories in Area B.</p>	-
Marking Scheme:	Suggests appropriate modes of transport from the mining area of Area A to the factories of Area B	1
	Gives relevant reasons for the choice of transport	1

Multiple-Choice Question

Chapter 8	International Trade (Fundamentals of Human Geography)	
Essential Idea	Free trade has advantages as well as disadvantages for developing nations.	
Item stem + question	<p>In Country A, 60% of the population is engaged in the primary sector. The government of the country has removed all the restrictions and tariffs on international trade.</p> <p>Which of these is incorrect about the effect of such a move?</p>	
Correct answer	The competition between goods and services from foreign and domestic sources decreases.	Student understands free trade can be detrimental for domestic trade.
Distractor 1	It allows the exchange of knowledge, ideas, and culture among nations.	Student does not understand free trade allows exchange of not only the concrete but also the abstract among nations.
Distractor 2	Customers get quality foreign goods with a wide range of choice at low prices.	Student does not understand free trade provides variety to people.
Distractor 3	Trading becomes easier and the economy becomes more open.	Student does not understand free trade makes economy open.

Free Response Question

Chapter 8	International Trade (Fundamentals of Human Geography)						
Essential Idea	A country's international trade is influenced by and influences its economic conditions						
Item stem + question	Study the table showing the volume of imports and exports [in US \$] of a country.						
		1995	2000	2005	2010	2015	2020
	Exports Total Merchandise	44,560	52,871	63,032	73,029	78,343	89,303
	Imports Total Merchandise	50,530	58,932	64,590	70,003	80,234	87,044
	<ol style="list-style-type: none"> 1. What is the trend in volume of trade from 1995 to 2020? 2. Which years showed an unfavourable balance of trade of the country? How does this affect the economic development? 3. Which year showed a favourable balance of trade of the country? How does this affect the economic development? 						
Sample Answer + Marking Rubric							
Part	Description					Marks	
Sample Answer	<ol style="list-style-type: none"> 1. The volume of trade of the country has shown continuous increase over the years. 2. 1995, 2000, 2005, 2015 and 2020 have shown unfavourable balance of trade. In these years, as the value of imports is more than the value of a country's exports, the country has negative or unfavourable balance of trade. This would ultimately lead to exhaustion of its financial reserves. 3. Year 2010 shows favourable balance of trade of the country. In this year, the value of exports is more than the value of imports. This means that the country is earning money by selling its goods which is an indicator of economic development of a country. 					-	
Marking Scheme:	Mentions the trend of increase in volume of trade seen over the years					1	

Part 1		
Part 2	Writes any one or all years (1995, 2000, 2005, 2015 and 2020) that show unfavourable balance of trade	0.5
Part 2	Explains that a higher value of import than the value of exports leads to exhaustion of financial reserve	0.5
Part 3	Writes the year (2010) that show favourable balance of trade	0.5
Part 3	Explains that higher value of exports than the value of imports indicates economic development of a country	0.5

Multiple-Choice Question

Chapter 1	Population: Distribution, Density, Growth and Composition (India: People and Economy)	
Essential Idea	India has a highly uneven pattern of population distribution and density due to physical, socio-economic and historical factors.	
Item stem + question	<p>In India, 9 states out of 28 account for about 76% of the total population of the country. Some states, such as Jammu & Kashmir, Arunachal Pradesh, and Uttarakhand, account for 1.92% of the total population.</p> <p>Which of these is the reason for the low population in Jammu & Kashmir, Arunachal Pradesh, and Uttarakhand?</p>	
Correct answer	Extreme climatic and geographical conditions	Student understands that a location's extreme climatic and geographical conditions would result in lower population density.
Distractor 1	Increase in industrialisation and urbanisation	Student does not understand that increase in industrialisation and urbanisation would attract people due to more employment opportunities and higher standard of living, increasing the population density.
Distractor 2	Availability of mineral and energy resources	Student does not understand that the availability of mineral and energy resources would attract people due to more employment opportunities, increasing the population density.
Distractor 3	Early history of human settlement	Student does not understand that the early history of human settlement at a location results in high population density.

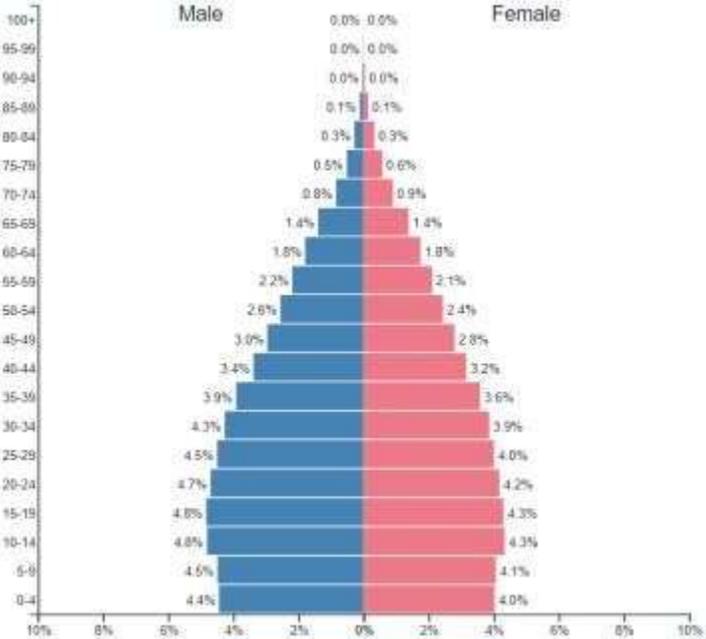
Free Response Question

Chapter 1	Population: Distribution, Density, Growth and Composition (India: People and Economy)
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Essential Idea India's population has a high rate of growth, especially of adolescents, with varied composition indicating social and economic characteristics.

Item stem + question WHO defines “adolescents” as individuals in the 10–19 year age group, and “youth” as the 15–24 year age group. Those in the age group 15-60 are regarded as the working group of a population.

Study the age-sex pyramid of India in 2020.



Source: <https://www.populationpyramid.net/india/2020/>

- a. Which age group forms the largest section of the Indian population, and what is the age group called?
- b. How does this form of pyramid affect the economic growth of India?

Sample Answer + Marking Rubric

Part	Description	Marks
Sample Answer	<p>a. Age group 10-14 and 15-19 form most of the Indian population. They fall under the “adolescent” group.</p> <p>b. The age-sex pyramid has a higher proportion of working group, which is a good indicator of the levels of economic development of a nation. This is because only a developed economy with industries and infrastructure can accommodate more workers in the secondary, tertiary and quaternary sector.</p>	-
Marking Scheme: Part a	Writes that the adolescent group (age: 10-19) forms most of the population	0.5
Part b	Explains the effects of a higher proportion of working group on economic growth of India	1.5

Multiple-Choice Question

Chapter 2	Human Settlements (India: People and Economy)	
Essential Idea	Urban centres in India function as nodal places and also perform specialised services.	
Item stem + question	<p><i>Lying within the territory of Chandigarh are the city of Chandigarh, several towns, and a number of adjoining villages. Chandigarh city is the capital of the territory and of the states of Haryana and Punjab.</i></p> <p>Source: https://www.britannica.com/place/Chandigarh-India</p> <p>Based on this, which of the following is true?</p>	
Correct answer	Chandigarh is an administrative city.	Student understands that since Chandigarh supports administrative headquarters, it is an administrative city.
Distractor 1	Chandigarh is a transport city.	Student does not understand that transport cities are engaged in import and export activities.
Distractor 2	Chandigarh is a mining town.	Student does not understand that mining towns are mineral rich areas with several mines.
Distractor 3	Chandigarh is a garrison town.	Student does not understand that garrison towns have a permanent military base.

Free Response Question

Chapter 2	Human Settlements (India: People and Economy)	
Essential Idea	Physical, social and security factors determine the types of rural settlements in India.	
Item stem + question	Physical features and socio-cultural factors have determined the types of rural settlements in parts of Rajasthan. A. What are the two types of rural settlements found in Rajasthan? B. How have these factors led to these two types of settlements? Explain in brief.	
Sample Answer + Marking Rubric		
Part	Description	Marks
Sample Answer	A. Rural settlements found in Rajasthan are clustered and semi-clustered. B. In Rajasthan, scarcity of water has necessitated compact settlement for maximum utilisation of available water resources. This causes the formation of clustered settlement. In some parts of Rajasthan, generally, the land-owning and dominant community occupies the central part of the main village, whereas people of lower strata of society and menial workers settle on the outer flanks of the village. This causes the formation of semi-clustered settlement.	-
Marking Scheme: Part A	Writes the two types of settlements – clustered and semi-clustered	1
Part B	Explains how physical features have led to the development of clustered settlements	1
Part B	Explains how socio-cultural factors have led to the development of semi-clustered settlements	1

Multiple-Choice Question

Chapter 3	Land Resources and Agriculture (India: People and Economy)	
Essential Idea	The types of changes that an economy undergoes influences the land use in a region.	
Item stem + question	<p><i>"Land use in a region is, to a large extent, influenced by the nature of economic activities carried out in that region."</i></p> <p>Which of the following economic activities will NOT put pressure on the land use of a country?</p>	
Correct answer	Subsidy for the usage of organic fertilizers for farming	Student understands that the use of organic fertilizers for farming enhances the soil quality and lessens the pressure on the land.
Distractor 1	Shift from primary to tertiary economy	Student does not understand that a shift of land from agricultural uses to non-agricultural uses would result in an increase in pressure on the land.
Distractor 2	5% increase in Gross Domestic Product	Student does not understand that an increase in the size of the economy due to a change in income levels and associated factors would result in an increase in the pressure on land.
Distractor 3	3% increase in population density	Student does not understand that an increase in the size of the economy due to an increase in the population would result in an increase in the pressure on land.

Free Response Question

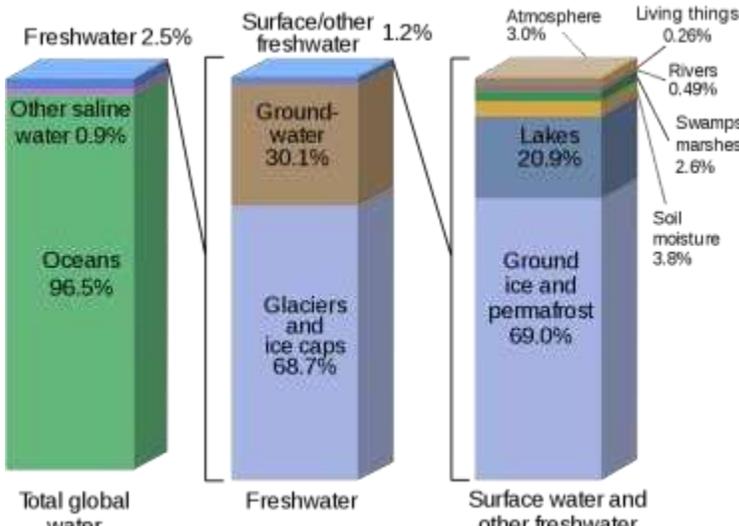
Chapter 3	Land Resources and Agriculture (India: People and Economy)																				
Essential Idea	Land use for agriculture plays a key role in India’s economy.																				
Item stem + question	<p>Study the chart showing the percent of labour employment in India by economic sectors (2010).</p> <div data-bbox="280 464 1070 959" data-label="Figure"> <table border="1"> <caption>Employment by Sector (%) 2009-10</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Agriculture</td> <td>53%</td> </tr> <tr> <td>Manufacturing</td> <td>11%</td> </tr> <tr> <td>Construction</td> <td>11%</td> </tr> <tr> <td>Trade</td> <td>9%</td> </tr> <tr> <td>Transport</td> <td>4%</td> </tr> <tr> <td>Hospitality & Real Estate</td> <td>3%</td> </tr> <tr> <td>Education</td> <td>2%</td> </tr> <tr> <td>Government</td> <td>2%</td> </tr> <tr> <td>Others</td> <td>5%</td> </tr> </tbody> </table> </div> <p>Source: https://en.wikipedia.org/wiki/Economy_of_India#/media/File:2010_Percent_labor_employment_in_India_by_its_economic_sectors.png</p> <p>Based on information provided by the above data, why do you think agricultural land resources and its quality are important for the economic and social security of the people in India? Provide 3 points.</p>	Sector	Percentage	Agriculture	53%	Manufacturing	11%	Construction	11%	Trade	9%	Transport	4%	Hospitality & Real Estate	3%	Education	2%	Government	2%	Others	5%
Sector	Percentage																				
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Hospitality & Real Estate	3%																				
Education	2%																				
Government	2%																				
Others	5%																				

Sample Answer + Marking Rubric

Part	Description	Marks
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Sample Answer	<p>The chart shows that agricultural land is the country's largest employment source (53%). Therefore, its use and quality contributes a significant piece to socio-economic development:</p> <ol style="list-style-type: none"> i. Land resource is more crucial to the livelihood of the people depending on agriculture. Contribution of land in agricultural output is more compared to its contribution in the outputs in the secondary and tertiary sectors. Thus, lack of access to land is directly correlated with incidence of poverty especially in rural areas. ii. Quality of land has a direct bearing on the productivity of agriculture, which is not true for other activities. iii. In rural areas, aside from its value as a productive factor, land ownership has a social value and serves as a security for credit, natural hazards or life contingencies, and also adds to the social status. 	-
Marking Scheme:	Explains how land resource is more crucial to the livelihood of the people depending on agriculture	1
	Explains how land quality determines the production and hence income for those depending on agriculture	1
	Explains how access to land resource provides social status and security	1

Multiple-Choice Question

<p>Chapter 4</p>	<p>Water Resources (India: People and Economy)</p>	
<p>Essential Idea</p>	<p>Only 60% of India’s surface water and groundwater can be put to beneficial use.</p>	
<p>Item stem + question</p>	<p>Study the data showing the different forms of water that contribute to global water.</p>  <p>Source: https://en.wikipedia.org/wiki/Water_distribution_on_Earth#/media/File:Earth's_water_distribution.svg</p> <p>“Around 21% of the available freshwater can be utilised by human beings.” Based on the above data, choose which one is the correct reason to justify the statement.</p>	
<p>Correct answer</p>	<p>Due to hydrological constraints such as being present as ground ice, permafrost, soil moisture and atmospheric vapour</p>	<p>Student understands that most of the available surface water cannot be utilised due to hydrological constraints such as being present in unextractable form.</p>

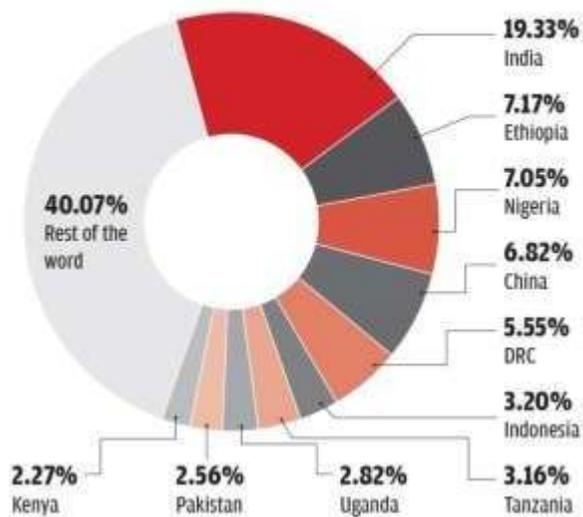
Distractor 1	Due to hydrological constraints such as being as ground water	Student does not understand that surface water does not include ground water.
Distractor 2	Due to hydrological constraints such as being present as glaciers and ice caps	Student does not understand that surface water does not include glaciers and ice caps.
Distractor 3	Due to hydrological constraints such as high salinity of water bodies	Student does not understand that freshwater is not saline.

Free Response Question

Chapter 4	Water Resources (India: People and Economy)
Essential Idea	Water conservation and management is an urgent requirement in India due to dwindling water availability and deteriorating water quality
Item stem + question	<p>Read the text and data given below:</p> <p><i>India is a tropical country with its rainfall seasonal but heavy—typically above 2,000 mm (79 in) per year. It has 4% of the world's fresh water because of some of the largest river systems.</i></p> <p><i>Around 80% of India's water is severely polluted because people dump raw sewage, silt and garbage into the country's rivers and lakes. This has led to water being undrinkable and the population having to rely on illegal and expensive sources.</i></p> <p><i>The port city of Chennai needs 800 million litres of water a day to meet demand for water, according to official data. At the moment, the government can provide only 675 million litres, according to the Chennai Metropolitan Water Supply and Sewerage Board.</i></p>

Waterless countries

Just 10 countries account for 60% of the world population without access to clean water



Source: The water gap—The State of the World's Water 2018 report by WaterAid

Sources: <http://www.todayindya.com/article/india-is-suffering-the-worst-water-crisis-in-its-history-/22782>
<https://www.borgenmagazine.com/water-pollution-in-india/>

- Using the above text and data, give two reasons to support the view that water management methods are the need of the hour in India.
- Suggest two water management methods that the people of India can use to conserve water.

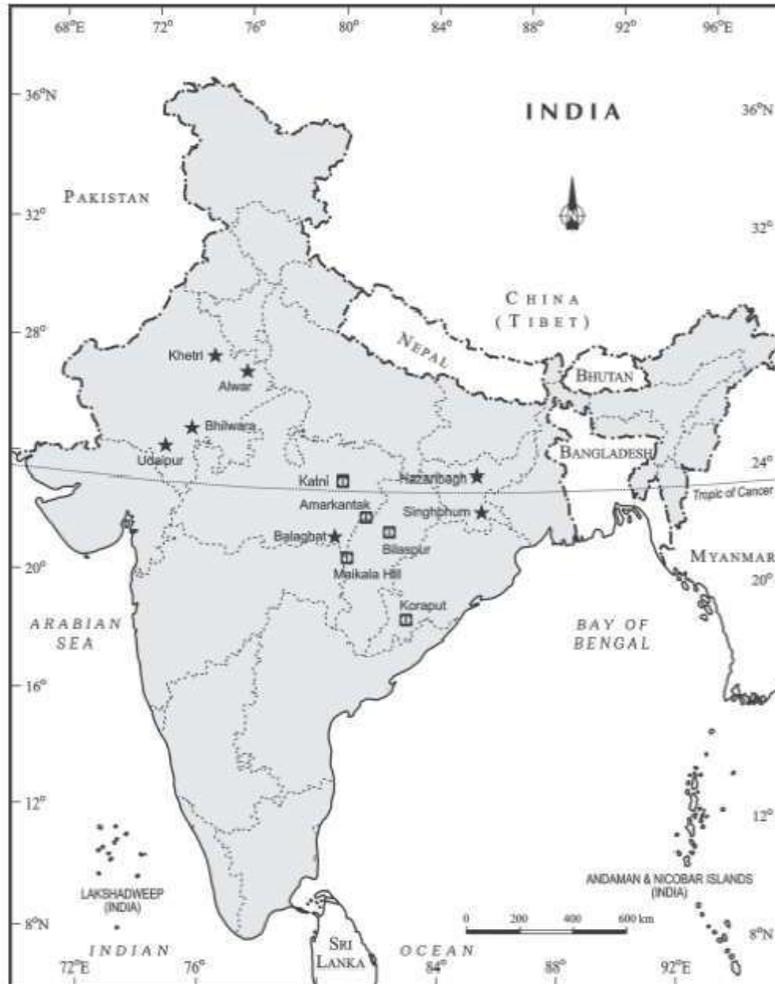
Sample Answer + Marking Rubric

Part	Description	Marks
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Sample Answer	<p>A. Two reasons to support the view that water management methods are the need of the hour in India.</p> <ol style="list-style-type: none"> 1. Most of the freshwater bodies are polluted by foreign matter such as microorganisms, chemicals, industrial and other wastes. Such matter deteriorates the quality of water and renders it unfit for human use. 2. The per capita availability of water is dwindling day by day due to increase in population. India has the highest percentage of population without access to clean water. <p>Due to high cost of desalinisation which would cause more inequality, India has to take quick steps and make effective policies and laws, and adopt effective measures for its conservation.</p> <p>B. Two water management methods that the people of India can use to conserve water:</p> <ol style="list-style-type: none"> a) Watershed Management: Watershed management basically refers to efficient management and conservation of surface and groundwater resources. It involves prevention of runoff and storage and recharge of groundwater through various methods like percolation tanks, recharge wells, etc. The per capita availability of water is dwindling day by day due to increase in population. India has the highest percentage of population without access to clean water. b) Rainwater Harvesting: Rain water harvesting is a method to capture and store rainwater for various uses. It is also used to recharge groundwater aquifers. It is a low cost and eco-friendly technique for preserving every drop of water by guiding the rain water to bore well, pits and wells. 	-
Marking Scheme: Part A	Mentions two relevant reasons using data points to indicate water crisis in India	2
Part B	Explains two logical water management methods	2

Multiple-Choice Question

Chapter 5	Mineral and Energy Resources (India: People and Economy)
Essential Idea	Minerals are mostly concentrated in three broad belts in India and form the necessary base for industrial development.
Item stem + question	Look at the map and the labelled places that are major mineral producers.



Using the labelled locations, select which of these is the correct representation of the major products.

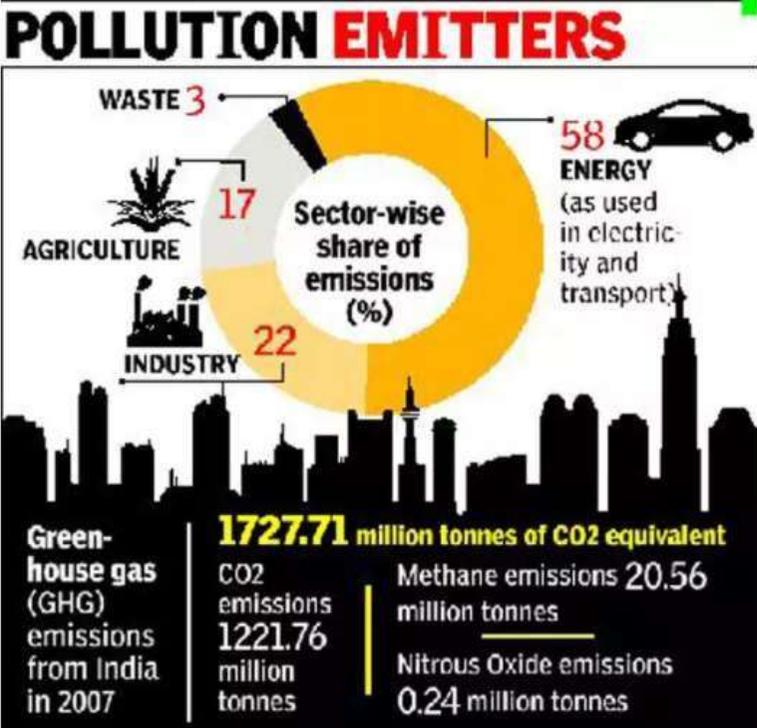
Correct answer

★	Copper
□	Bauxite

Student understands that copper is the major mineral of North-Western region belt that extends along Aravalli in Rajasthan and part of Gujarat, while bauxite is found mainly in Odisha.

Distractor 1	★	Coal fields	Student does not understand that coal fields are found in the Damodar Valley in the Jharkhand-Bengal coal belt.
	☐	Iron ore	
Distractor 2	★	Iron ore	Student does not understand that iron ore is not found in the North-Western region belt.
	☐	Manganese	
Distractor 3	★	Manganese	Student does not understand that manganese. is not found in the North-Western region belt.
	☐	Oil fields	

Free Response Question

Chapter 5	Mineral and Energy Resources (India: People and Economy)														
Essential Idea	A variety of conventional and non-conventional energy resources generate the power needed by the agricultural, industrial and other sectors of the economy.														
Item stem + question	<p>Energy resources can be classified as conventional or non-conventional sources of energy based on their replenishing ability.</p> <p>Look at the chart showing pollution caused by different sectors of the economy.</p>  <p>POLLUTION EMITTERS</p> <p>Sector-wise share of emissions (%)</p> <table border="1"> <thead> <tr> <th>Sector</th> <th>Share (%)</th> </tr> </thead> <tbody> <tr> <td>ENERGY (as used in electricity and transport)</td> <td>58</td> </tr> <tr> <td>INDUSTRY</td> <td>22</td> </tr> <tr> <td>AGRICULTURE</td> <td>17</td> </tr> <tr> <td>WASTE</td> <td>3</td> </tr> </tbody> </table> <p>Green-house gas (GHG) emissions from India in 2007</p> <table border="1"> <tbody> <tr> <td>1727.71 million tonnes of CO₂ equivalent</td> </tr> <tr> <td>CO₂ emissions 1221.76 million tonnes</td> </tr> <tr> <td>Methane emissions 20.56 million tonnes</td> </tr> <tr> <td>Nitrous Oxide emissions 0.24 million tonnes</td> </tr> </tbody> </table> <p>Source: http://wwfenvi.nic.in/ViewGeneralLatestNews.aspx?format=Print&Id=5590</p> <p>1. Based on the chart, which out of primary, secondary or tertiary sector is the most responsible for the pollution?</p>	Sector	Share (%)	ENERGY (as used in electricity and transport)	58	INDUSTRY	22	AGRICULTURE	17	WASTE	3	1727.71 million tonnes of CO₂ equivalent	CO ₂ emissions 1221.76 million tonnes	Methane emissions 20.56 million tonnes	Nitrous Oxide emissions 0.24 million tonnes
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2. Out of the two types of energy sources, which source would help to reduce pollution? Briefly explain any two sources of energy of this type.

Sample Answer + Marking Rubric

Part	Description	Marks
Sample Answer	<ol style="list-style-type: none"> 1. The tertiary sector (energy sector), which includes factories to facilitate the transport, electricity, distribution, and sale of goods produced in the secondary sector, contributes the most to pollution. 2. Non-conventional sources of energy would help to reduce pollution since they are environment friendly. Two examples of non-conventional energy sources are: <ol style="list-style-type: none"> I. Geothermal Energy: The heat energy released by the magma from the interior of the earth when it comes out on the surface. This heat energy is trapped and converted into electrical energy. II. Wind Energy: It is absolutely pollution free, inexhaustible source of energy. The mechanism converts kinetic energy into electrical energy. 	-
Marking Scheme: Part 1	States that the tertiary sector (energy sector) is responsible for most of the pollution	1
Part 2	States that non-conventional sources of energy can help to reduce pollution	1
Part 2	Explains any two non-conventional sources of energy (0.5 marks each)	1

Multiple-Choice Question

Chapter 6	Planning and Sustainable Development in Indian Context (India: People and Economy)	
Essential Idea	India has adopted a decentralised, multi-level approach to planning to reduce regional imbalance in development.	
Item stem + question	<p><i>Planning Commission is an economic-policy making agency that works at the centre, state and district levels in India. The commission introduced programmes directed towards the development of 'target areas' such as are Command Area Development Programme, Drought Prone Area Development Programme, Desert Development Programme, and Hill Area Development Programme. They also introduced programmes for 'target groups' such as Small Farmers Development Agency (SFDA) and Marginal Farmers Development Agency (MFDA).</i></p> <p>Based on the above text, which of these is NOT a feature of the Indian Planning Commission?</p>	
Correct answer	It is a centralised commission.	Student understands that the planning commission involves local organisations and institutions to make and execute plans without interference by a central body.
Distractor 1	It is a multi-level approach to planning.	Student does not understand that a multilevel approach involves planning at different levels such as the centre, state, and district, which is a framework of the Indian Planning Commission.
Distractor 2	It focuses on reducing regional imbalances.	Student does not understand that planning with consideration to the development of target areas and target groups reduces regional imbalance.
Distractor 3	It employs both sectoral and regional planning.	Student does not understand that the planning commission involves programmes for the development of various sectors along with programmes for the economic, social, and physical resources of a specific area.

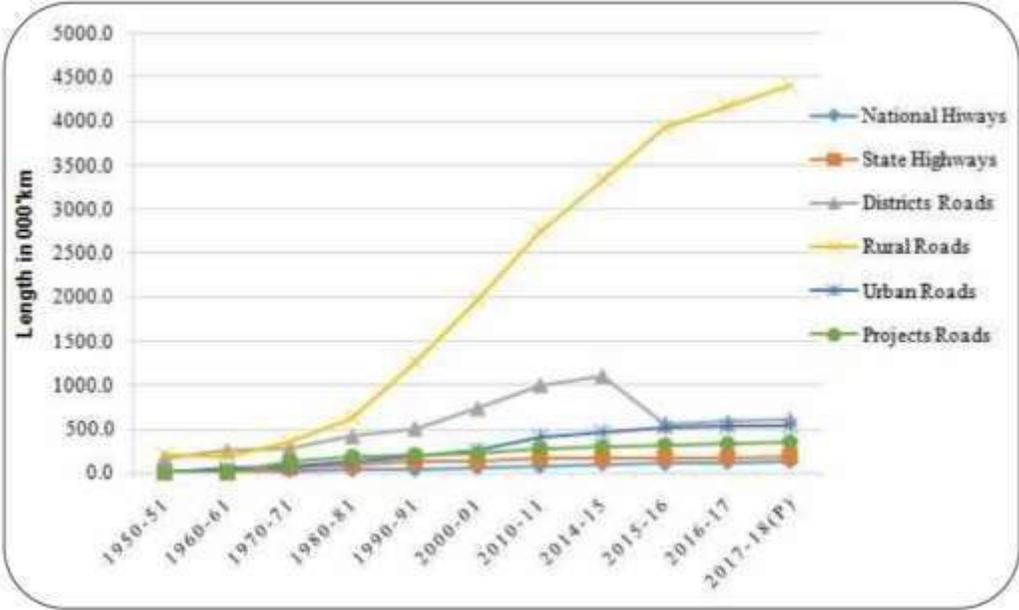
Free Response Question

Chapter 6	Planning and Sustainable Development in Indian Context (India: People and Economy)
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Essential Idea	Sustainable development takes care of ecological, social and economic aspects of development.	
Item stem + question	Country A and Country B are developing countries.	
	Development plan of Country A	Development plan of Country B
	<ul style="list-style-type: none"> • Development of basic infrastructure such as schools, hospitals and transport system. • Development of facilities and technologies to ensure availability of clean water, communication system and electricity. • Scientific methods of animal husbandry. • Establishing roads and transport system between centres and local, regional and international market. 	<ul style="list-style-type: none"> • Providing employment to people from natural disaster-prone areas. • Development of roads connecting rural and urban areas. • Long-term and integrated land-use planning protecting the environment. • Environmental controls factored into land-use planning to ensure the developments are properly sited. • New and eco-friendly methods of agriculture.
Which country do you think has a sustainable development plan, and why?		
Sample Answer + Marking Rubric		
Part	Description	Marks
Sample Answer	<p>Country B has a sustainable development plan since it covers all three aspects—ecological, social, and economic aspects of development.</p> <p>The development plans of country A focus only on the economic and social aspects of development, such as schools to provide education, healthcare for life expectancy, and better infrastructural and trade facilities.</p>	-

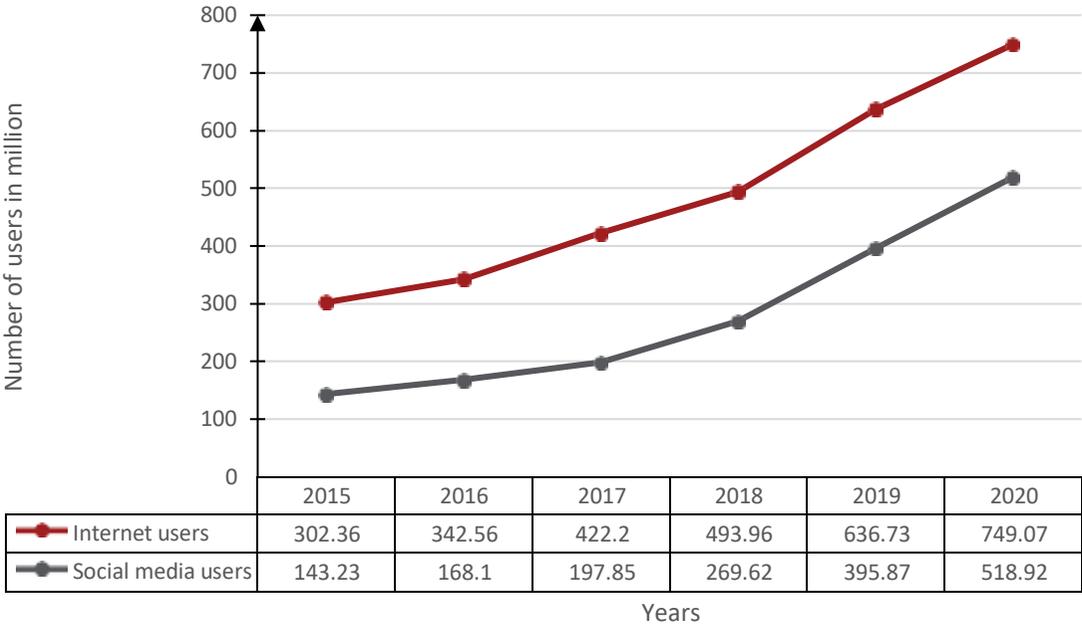
	However, the development plans of country B, along with economic aspects, also focus on social aspects such as eradicating social imbalances by providing employment and ecological aspects by encouraging eco-friendly methods of agriculture.	
Marking Scheme: Part 1	Identifies Country B as having sustainable development plans	1
Part 2	Compares development plans of country A and country B based on economic, social and ecological aspects of development	2

Multiple-Choice Question

<p>Chapter 7</p>	<p>Transport and Communication (India: People and Economy)</p>	
<p>Essential Idea</p>	<p>India has a large network of land, water and air transport for both passenger and cargo traffic.</p>	
<p>Item stem + question</p>	<p>Study the data showing the category-wise trend of growth of Indian road length over the years.</p>  <p>Source: https://morth.nic.in/sites/default/files/BRS_Final.pdf</p> <p>Which of the these is the correct inference from the graph?</p>	
<p>Correct answer</p>	<p>Most of the total road length in India is providing links in the rural areas</p>	<p>Student understands rural roads contribute to majority of the total road length in India.</p>

Distractor 1	Roads maintained by the central and state government have variable increase over the years	Student does not understand national and state highway have shown consistent increase over the years.
Distractor 2	Roads connecting district headquarters have a sudden increase in length in 2014	Students does not understand district roads showed decrease in 2014
Distractor 3	Roads connecting district headquarters have the third largest contribution to Indian roadways	Students does not understand district roads have second largest contribution to the total road length in India

Free Response Question

<p>Chapter 7</p>	<p>Transport and Communication (India: People and Economy)</p>																					
<p>Essential Idea</p>	<p>Development in the field of science and technology has significantly contributed in bringing about a revolution in the field of communication in India.</p>																					
<p>Item stem + question</p>	<p>Social media is an internet-based technology that facilitates the sharing of ideas, thoughts, and information through the building of virtual networks and communities.</p> <p>Study the trend in internet and social media users of India during 2015-2020.</p>  <table border="1" data-bbox="405 1034 1487 1152"> <thead> <tr> <th></th> <th>2015</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>2020</th> </tr> </thead> <tbody> <tr> <td>Internet users</td> <td>302.36</td> <td>342.56</td> <td>422.2</td> <td>493.96</td> <td>636.73</td> <td>749.07</td> </tr> <tr> <td>Social media users</td> <td>143.23</td> <td>168.1</td> <td>197.85</td> <td>269.62</td> <td>395.87</td> <td>518.92</td> </tr> </tbody> </table> <p>Source of data: https://www.statista.com/</p>		2015	2016	2017	2018	2019	2020	Internet users	302.36	342.56	422.2	493.96	636.73	749.07	Social media users	143.23	168.1	197.85	269.62	395.87	518.92
	2015	2016	2017	2018	2019	2020																
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Social media users	143.23	168.1	197.85	269.62	395.87	518.92																

Based on the given data, how did the advancement of information technology affect the mass communication system in India?

Sample Answer + Marking Rubric

Part	Description	Marks
Sample Answer	The data shows increase in social media users with the increase in internet users over the last few years. Social media allows us to create relationships with people who we might not otherwise know. This has boosted the global communication system. The internet has a big role in creating these social media platforms on computers and other electronic devices. Also, with the information technology, it's possible to access almost any type of information.	-
Marking Scheme: Part 1	Highlights social media users increased due to increase in accessibility to internet	0.5
	Mentions the role of social media in mass communication system	0.5
	Mentions the role of information technology in establishing internet	1

Multiple-Choice Question

<p>Chapter 8</p>	<p>International Trade (India: People and Economy)</p>																						
<p>Essential Idea</p>	<p>The nature of India's foreign trade has changed over the years, in terms of volume, composition and direction.</p>																						
<p>Item stem + question</p>	<p>Study the trend of exports and imports in India during the years 2008–2018.</p> <div data-bbox="369 384 1406 1061" data-label="Figure"> <table border="1"> <caption>Extent of gap between export and imports in India's foreign trade</caption> <thead> <tr> <th>Year</th> <th>Import (100 million Rupees)</th> <th>Export (100 million Rupees)</th> </tr> </thead> <tbody> <tr> <td>2008</td> <td>3,15,712</td> <td>1,81,861</td> </tr> <tr> <td>2010</td> <td>3,50,029</td> <td>2,20,408</td> </tr> <tr> <td>2012</td> <td>4,88,976</td> <td>2,89,565</td> </tr> <tr> <td>2014</td> <td>4,59,369</td> <td>3,17,545</td> </tr> <tr> <td>2016</td> <td>3,56,705</td> <td>2,60,327</td> </tr> <tr> <td>2018</td> <td>6,17,946</td> <td>3,22,292</td> </tr> </tbody> </table> </div> <p>Data source: https://wits.worldbank.org/CountryProfile/en/Country/IND/Year/2019/SummaryText</p> <p>What can you conclude from the above data about the pattern of India's international trade?</p>		Year	Import (100 million Rupees)	Export (100 million Rupees)	2008	3,15,712	1,81,861	2010	3,50,029	2,20,408	2012	4,88,976	2,89,565	2014	4,59,369	3,17,545	2016	3,56,705	2,60,327	2018	6,17,946	3,22,292
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2018	6,17,946	3,22,292																					
<p>Correct answer</p>	<p>The trade deficit was the highest in 2018.</p>	<p>Student understands that the difference between imports and exports is at an all-time high in 2018, showing a high trade deficit.</p>																					

Distractor 1	The trade deficit decreased during 2010–2012.	Student does not understand that the gap between imports and exports widened between 2010 and 2012.
Distractor 2	The trade deficit increased during 2014–2016.	Student does not understand that the trade deficit between imports and exports narrowed between 2012 and 2014.
Distractor 3	The total volume of imports and exports increased during 2012–2014.	Student does not understand that the total sum of import and export volume decreased during 2012–2014.

Free Response Question

Chapter 8	International Trade (India: People and Economy)	
Essential Idea	India's sea port and airports are the country's gateways to international trade.	
Item stem + question	<p><i>India's international trade has undergone a sea change in recent years in terms of volume, composition as well as direction. Although India's contribution in the world trade is as low as one per cent of the total volume, yet it plays a significant role in the world economy.</i></p> <p>Explain 1 historical, 1 economic and 1 geographical factor that has contributed to India's growing international trade.</p>	
Sample Answer + Marking Rubric		
Part	Description	Marks
Sample Answer	<p>Historical factor: British developed these ports and railways to connect local, regional, national, and international markets. They build transport network for trading different resources from India to the outside world using ports and within India using railways. These ports and railways served as India's trade gateway.</p> <p>Economic factor: India has developed trade relations with most of the countries and major trading blocs of the world, and has already started adopting suitable measures such as import liberalisation, reduction in import duties, delicensing and change from process to product patents.</p> <p>Geographical factor: India is surrounded by sea from three sides and is bestowed with a long coastline. Water provides a smooth surface for very cheap transport, making international sea trade very easy.</p>	-
Marking Scheme: Part A	Explains 1 relevant historical factor	1

Part B	Explains 1 relevant economic factor	1
Part B	Explains 1 relevant geographical factor	1

Multiple-Choice Question

Chapter 9	Geographical Perspective on Selected Issues and Problems (India: People and Economy)	
Essential Idea	Prevalent issues of environmental pollution, urban waste disposal, development of slums, and land degradation can be looked at through the lens of Geography.	
Item stem + question	<p><i>Air pollution is defined as the substantial addition of contaminants like dust, fumes, gas, fog, odour, smoke, or vapour to the air.</i></p> <p>Which of these is a sign of air pollution?</p>	
Correct answer	The pH value of the first rain after summer is always lower than the subsequent rains.	Student understands that low the pH of rainwater indicates acid rain, which is a result of air pollution.
Distractor 1	Regular exposure to elevated sound levels from sirens and loudspeakers used in various festivals and programmes	Student does not understand that unbearable and uncomfortable noise is called noise pollution.
Distractor 2	Concentration of industrial units in and around urban centres that dump industrial wastes into rivers	Student does not understand that the disposal of untreated waste into waterbodies causes water pollution.
Distractor 3	Increase in basicity and salinity of soil	Student does not understand that salinisation and alkalinisation of soil leads to land degradation.

Free Response Question

Chapter 9	Geographical Perspective on Selected Issues and Problems	
Essential Idea	Prevalent issues of environmental pollution, urban waste disposal, development of slums, and land degradation can be looked at through the lens of Geography.	
Item stem + question	<p><i>A village has 90% of its population below the poverty line. Most of these people are engaged in farming. The average family size is 10–15 members. To meet the needs of their families, they practise shifting cultivation. In this, they continuously use a piece of land to grow different varieties of crops until its fertility diminishes, after which it is abandoned and they move on to farming in a new area.</i></p> <p>Based on the above example, how do you think extreme poverty leads to land degradation?</p>	
Sample Answer + Marking Rubric		
Part	Description	Marks
Sample Answer	Poverty, along with larger families, makes people put relatively more pressure on the environment and land to meet their needs. This causes overexploitation of natural resources, such as practising shift cultivation. This system makes the soil infertile and degrades its quality for a long period of time. Abandoned lands would need a longer duration of time to be fertile for their next use. This cause scarcity of available land and the deterioration of agricultural land quality.	-
Marking Scheme:	Explains that lack of resources for farming due to poverty lead to exploitation of agricultural land	1
	Explains that unsustainable agricultural practices due to poverty lead to land degradation	1

12. REFERENCE DOCUMENTS

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3. National Curriculum Framework, NCERT 2005
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8. Fundamentals of Human Geography, Class XII, Published by NCERT
9. India - People and Economy, Class XII, Published by NCERT
10. Practical Work in Geography Part II, Class XII, Published by NCERT

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