

KENDRIYA VIDYALAYA SANGATHAN

(MUMBAI REGION)



BRIDGE COURSE

(21 Days)

For Classes 11th & 12th

(Commerce & Humanities)

(Academic Year 2022-2023)

Bridge Course for Classes 11th & 12th

(Commerce & Humanities)

INSPIRATION

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BRIDGE COURSE

Class XI-XII

COORDINATOR: MR S.V LAWANDE, PRINCIPAL KV LONAVALA

Class	Economics	Accountancy	Business studies	GEOGRAPHY	History	Political Science	SOCIOLOGY
XI	ARVIND KUMAR, PRINCIPAL KV NAGPUR VSN	Mr. PRAVEEN KUMAR, VP KV PUNE NO. II AFS	Mr. MD. NASIMUDDIN, PRINCIPAL KV NO.3 (9 BRD)	DR A.K MISHRA, PRINCIPAL KV NO.1 DEHU	MR. SURESH YADAV, VICE-PRINCIPAL KV PUNE DIAT GIRINAGAR	MR. SURESH YADAV, PRINCIPAL KV PUNE DIAT GIRINAGAR	ARVIND KUMAR, PRINCIPAL KV NAGPUR VSN
XII	H R CHOUDHARY, VP, KV PARBHANI	MISS ANJU KRISHNANI, VP KV NASIK ROAD NO.1 ARMY CAMP	MR. PRAMOD PARATE, PRINCIPAL KV NAGPUR CRPF	ARVIND KUMAR, PRINCIPAL KV NAGPUR VSN	MR RANJAN INGLE, VP KV CME PUNE	H R CHOUDHARY, VP KV PARBHANI	H R CHOUDHARY, VP, KV PARBHANI

Instructions for Students

Dear students, due to pandemic situation in the last academic year, you continued your learning and education through online and in various digital modes. This Bridge Course has been prepared for you with the objective of reviewing the previous year's syllabus at the beginning of the present academic year and helping you to prepare for this year's syllabus.

1. The bridge course lasts for a total of 21 days and consists of three tests after a certain period of time.
2. The bridge course will help you to understand exactly what you have learned in the previous academic year and to understand the curriculum for the next class.
3. This bridge course should be studied on a day-to-day basis.
4. It consists of day-to-day worksheets. You are expected to solve the worksheet on your own as per the given plan.
5. Seek the help of a teacher, parent or siblings if you have difficulty solving the worksheet.
6. Solve the tests provided along with as planned.
7. Get it checked with the teacher after completing the test.
8. Seek the help of teachers to understand the part that is not understood or seems difficult.

Instructions for Teachers

As we all are very well aware about the fact that due to pandemic situation, the schools were formally closed during the last academic year and the actual classroom teaching and learning could not take place. On this background various efforts have been made by the teachers in the last two academic year to impart education to the students through online mode. Accordingly, the Bridge Course has been prepared with the dual objective of reviewing the studies done by the students in the previous academic year and helping them to learn the curriculum of the present class in this academic year.

1. The bridge course lasts for a total of 21 days and consists of three tests after a certain period of time.
2. The bridge course is based on the syllabus of previous class and is a link between the syllabi of previous and the current class.
3. This bridge course has to be prepared class wise and subject wise. It is related to the learning outcomes and basic competencies of the previous class' textbook and is based on its components.
4. The bridge course includes component and sub-component wise worksheets. These worksheets are generally based on learning outcomes and basic competencies.
5. The structure of the worksheet is generally as follows.

Part One - Learning Outcomes/Competency Statements.

Part Two - Instructions for teachers

Part Three - Instructions for Students

Part Four - Learning Activity

Part Five - Solved Activity

Part Six – Practice

Part Seven - Extension Activity/Parallel Activity/Reinforcement

Part Eight – Evaluation

6. This bridge course will be very important from the point of view to revise and reinforce the learning of the students from the previous class and pave the way to make their learning happen in the next class.
7. Teachers should help their children to complete this bridge course as per day wise plan.
8. Teachers should pay attention to the fact that the student will solve each worksheet on his/her own, help them wherever necessary.
9. The teacher should conduct the tests of the students after the stipulated time period, assess the test papers and keep a record of the same.
10. Having checked the test papers, teachers should provide additional supplementary help to the students who are lagged behind.

**KENDRIYA VIDYALAYA SAGATHAN, MUMBAI REGION
BRIDGE COURSE 2022-2023
CLASS XI GEOGRAPHY**

Module -1

GEOGRAPHY AS A DISCIPLINE

LEARNING OUTCOMES-

- 1 Relationship between physical geography with natural science and social science.
2. Information about scope, branches & as a career in Geography

1. Definition of geography
2. Scope of geography
3. Branches of geography
4. Systematic and regional geography
5. Importance of physical geography
6. Geography as a career
7. Relationship between physical geography with natural science and social science.

EXERCISE

1. Mention the branches of physical geography.
2. Mention any four branches of Human geography.
3. What are the three sets of questions in geography as a discipline?
4. Differentiate between systematic geography and regional geography.
5. What are the method and techniques use to study geography?

Module -2

INTRODUCTION OF MAPS, TYPES OF MAPS, WORLD MAPS

LEARNING OUTCOMES-

1. Knowledge of maps
2. Information about scale, directions on map
3. Identification of geographical features on World map

1. Definition of maps
2. Globe and its uses
3. Scales of map
4. Directions on map
5. Location of Islands, Water bodies, deserts on world map

EXERCISE

1. How maps are different from globe?
2. What are the uses of maps?
3. Mention types of map scales.
4. Locate selected seas, gulf, bays, Islands, and some capital cities on world map.
5. Identify some features marked on world map.

Module -3

LATITUDE AND LONGITUDE AND TIME

LEARNING OUTCOMES-

1. Calculating latitude and longitude
2. Finding Standard Time.
3. Identification of Indian States, Union Territory and Their Capitals.

1. Understanding of latitude and longitude
2. Calculation of international time
3. Importance of latitudinal extent and longitudinal extent.
4. Identification of tropics,
5. IST, GMT

EXERCISE.

1. What is equator?
2. What is the significance of GMT and IST?
3. Mention the southern and northern tip and points of India.
4. Calculate the standard time of 70° E longitude, if the time at prime meridian is 12:00 noon?

Module -4

INTERIOR OF EARTH, INTRODUCTION ON EARTHQUAKE AND VOLCANOES

LEARNING OUTCOMES-

1. Knowledge about interior of earth
2. Information about earthquakes and its areas
3. Debate on volcanoes and its effects.

1. Direct sources of earth interior.
2. Indirect sources of earth interior
3. Earthquakes origin, effects and area waves
4. Volcanoes types, origin, landforms and effects

EXERCISE

1. What are seismic waves?
2. Which seismic wave is most destructive?
3. Which waves cannot pass through liquid materials?
a) Primary waves b) Secondary waves c) Surface waves d) All of the above
4. Which is not correct about Volcanoes?
(a) Direct source of information about the earth's interior.
(b) Indirect source of information about the interior of the earth.
(c) A source of information about the interior of the earth.
(d) Good source to ascertain earth's temperature
5. Earthquake waves are recorded on the -----.
(a) Seismograph (b) Barograph (c) Pantograph (d) Ergograph
6. The Deccan trap is a large-----.
(a) Flood plain (b) flood basalt province (c) Lava plain (d) shield volcano
7. Explain the effects of Earthquakes.

Module -5

CONTINENTAL DRIFT THEORY AND TECTONIC PLATES THEORY.

LEARNING OUTCOMES-

1. knowledge about theories of origin of earth.
2. Identification of Oceans and Continents.
3. Understanding of Continental drift theory and tectonic theory.

1. layout of Oceans, Seas, and all seven continents.
2. Use of world physical map.
3. Force for the plate movement
4. Arthur homes Convectional currents theory.
5. Tectonic theory.
6. Major continental and ocean tectonics plates and their maps.
7. Drifting of Indian plates.
8. Continental drift.
 - Wegner's continental drift theory, Evidence in support of the continental drift
 - I) The matching of continents (Jig-Saw-fit)
 - II) II) Rocks of Same Age Across the Oceans
 - III) III) Tillite
 - IV) IV) Placer Deposit
 - V) V) Distribution of Fossils
- 9.. Force for Drifting
 - I) Pole-fleeing force
 - II) Tidal force
10. Post-drift Studies
 - I) Conventional current theory
 - II) Mapping of the ocean floor
10. Ocean floor configuration
 - I) Continental margins
 - II) Abyssal plains
 - III) Mid-oceanic ridge
11. Distribution of earthquakes and volcanoes
12. Concept of seafloor spreading
13. Plate tectonics

14. Plate boundaries I) Divergent boundaries II) Convergent boundaries III) Transform boundaries
15. Rates of plate movement
17. Movement of the Indian plate

EXERCISE

1. The process in which one plate over-rides the other and the over-ridden plate slips down into the mantle and is absorbed is called
(a) Subduction (b) Abduction (c) Polar wandering (d) Geological process
2. Explain wegener's continental drift theory with evidences.
3. Mention major tectonic plates in world.
4. Locate all minor tectonic plates on world map.
5. What are tectonic plate boundaries
6. Rich placer deposits of gold occur in
(a) Australia (b) America (c) Madagascar (d) Ghana coast
7. Who collected the ideas about plate tectonics (1967)?
(a) Mackenzie (b) Parker (c) Morgan (d) all of them

Module -6

ROCKS AND MINERALS

LEARNING OUTCOMES-

1. Knowledge about rocks and stones.
2. Understanding the importance of rocks
3. Knowledge about different minerals and their uses.
4. Identifications of rocks.

1. The solid masses occurring naturally can be described as Rocks.

The rocks contain properties of mineral traces.

2. The rocks usually contain a unique combination of chemicals, minerals, textures, size, shape, grains etc. These distinguishing characteristics play a very important role in further categorizing rocks.
3. Following are the different types of Rocks: There are three types of rocks: $\rightarrow$ Igneous Rocks $\rightarrow$ Sedimentary Rocks $\rightarrow$ Metamorphic Rocks
4. Igneous Rock: Rocks that are formed by the solidification and cooling of magma or lava are called Igneous Rock. This rock can be formed with or without the crystallization. They can find on the surface that is extrusive rocks or below the surface as intrusive or plutonic Rocks.
5. Sedimentary Rock: $\cdot$ The rocks formed by the sediment or debris of the liquid are called $\cdot$ Sedimentary Rocks. $\cdot$ The particles that form sedimentary rocks are termed as sediments. $\cdot$ The sediments are transported with the water, ice or wind. $\cdot$
6. The Metamorphic Rocks are also formed beneath the earth's surface due to high temperature and a good amount of pressure. The temperature, pressure and various other conditions can physically or chemically change the properties of Metamorphic Rock. This process is called Metamorphism.
7. A petrologist studies rocks in all their aspects viz., mineral composition, texture, structure, origin, occurrence, alteration and relationship with other rocks.

8. Lithification: Rocks (igneous, sedimentary and metamorphic) of the earth's surface are exposed to denudational agents, and are broken up into various sizes of fragments. Such fragments are transported by different exogenous agencies and deposited. These deposits through compaction turn into rocks. This process is called lithification.
9. Metamorphism: It is a process by which already consolidated rocks undergo recrystallisation and reorganization of materials within original rocks. Lineation: In the process of metamorphism in some rocks grains or minerals get arranged in layers or lines. Such an arrangement of minerals or grains in metamorphic rocks is called foliation or lineation.
10. Banding: Sometimes minerals or materials of different groups are arranged into alternating thin to thick layers appearing in light and dark shades. Such a structure in metamorphic rocks is called banding.

EXERCISE

1. Consider the following statements
 - I. all sedimentary rocks are formed under water.
 - II. All sedimentary rocks have layers.
 - III. Loess is formed at the land surface and has no layer.
 - IV. Loesses is a sedimentary rock.
2. Foliated rocks and non-foliated rocks are classification of
 - a) igneous rocks b) sedimentary rocks c) metamorphic rocks d) crystal rocks
3. Which one of the following is the salient feature of metamorphic rock?
 - (a) Changeable (b) Quite (c) Crystalline (d) Foliation
4. Sedimentary rocks characterized by
 - a) Stratification b) crystalline nature c) previous nature d) coarse texture
5. Differentiate between features of Igneous rocks and Sedimentary rocks
6. What are the types of Minerals on the bases of occurrence?

Module -7

ATMOSPHERE COMPOSITION AND STRUCTURE OF ATMOSPHERE

LEARNING OUTCOMES-

1. Knowledge About the Atmosphere and Its Importance.
2. Understanding of Composition of Atmosphere
3. Understanding of Structure of Atmosphere
4. Understanding Relation Between Weather and Climate.
5. Knowledge of Local Weather Conditions

1. Definition of atmosphere
2. Important gases of atmosphere.
3. Role of dust particles and water vapour in the atmosphere
4. Explanation of structure of atmosphere with the help of diagram.
5. Relation between weather and climate.
6. The air is an integral part of the earth's mass and 99 % of the total mass of the atmosphere is confined to the height of 32 km from the earth's surface.
 6. Atmosphere-compositions and structure; elements of weather and climate
 7. Composition: gases, water vapour and dust particles.
 8. Structure of Atmosphere · Layers of Atmosphere: Troposphere, Stratosphere, Mesosphere, Ionosphere, Exosphere.
 9. The Troposphere is the lowermost layer of the atmosphere. Its average height is 13 km and extends roughly to a height of 8 km near the poles and about 18 km at the equator. This layer contains dust particles and water vapour. All climate and weather take place in this layer. Temperature in this layer decreases at the rate of 1degree C per 165m of height.

10. Stratosphere: The stratosphere is found above the tropopause and extends upto a height of 50 km. One important feature of stratosphere is that it has ozone layer.
11. Elements of Weather and Climate: The main elements of atmosphere which are subject to change and which influence human life on earth are: temperature, pressure, winds, humidity, clouds and precipitation

EXERCISE

1. What do you mean by atmosphere?
2. What are greenhouse gases?
3. What do you mean by global warming?
4. Mention the importance of CO₂, O₂, Ozone and Nitrogen gas.
5. Why troposphere is very important layer of the atmosphere?
6. The imaginary line that separates troposphere from stratosphere is
(a) Stratopause (b) Tropopause (c) Ozone layer (d) Exosphere
7. What percentage of carbon di oxide is found in the atmosphere?
(a) 0.036% (b) 0.93% (c) 0.002% (d) 0.3%

Module -8

SOLAR RADIATION, HEAT BUDGET AND TEMPERATURE

LEARNING OUTCOMES-

1. Understanding of solar energy and its distribution
2. Understanding about solar radiation and terrestrial radiation
3. Understanding about variation in solar radiation in world
4. Knowledge about heating and cooling of atmosphere

1. INSOLATION: The amount of solar radiation received on earth is called insolation. The energy is received in the form of short waves. This radiant energy of the sun is received at the rate of 2 calories per sq cm. per minute at the surface of the earth.
2. FACTORS AFFECTING INSOLATION: The insolation received on the earth is not same everywhere. It increases or decreases according to seasons and conditions of atmosphere. 17 | Page (I) Angle of incidence or inclination of sun rays. (a) Slanted rays cover longer distance in atmosphere (b) Heat received per unit area is more in case of vertical rays and less in case of slanted rays. (II) Duration of the day (III) Differences in the amount of radiant energy of the sun. (IV) Difference in distance of the earth from the

sun (V) Transparency of the atmosphere Heating and cooling of the atmosphere:

3. Conduction: Transfer of heat molecules from hot to cold substances through contact is known as conduction.
4. Convection: In this process transfer of heat takes place only in liquid or gaseous condition of the substance. The molecules become light and rise the vacant spaces are filled by the cooler mass
5. Radiation: In this process heat is transferred directly from space to atmosphere.
6. Advection: The process of the horizontal transfer of heat by winds is called advection. Terrestrial Radiation The process in which the earth after being heated itself becomes a radiating body and it radiates energy to the atmosphere in long wave form which heats up the atmosphere from below is called terrestrial radiation.
7. Heat Budget of the Planet Earth · Albedo of the earth: The reflected amount of radiation is called the albedo of the earth. · The earth neither warms up nor cools down despite the huge transfer of heat that takes place. Temperature. The interaction of insolation with the atmosphere and the earth's surface creates heat which is measured in terms of temperature
8. . Factors Controlling Temperature Distribution · The latitude of the place · The altitude of the place · Distance from the sea, the air mass circulation · The presence of warm and cold ocean currents · Local aspects Distribution of Temperature
9. · Isotherms: lines joining places having equal temperature. · . In January the isotherms deviate to the north over the ocean and to the south over the continent. · In July the isotherms generally run parallel to the latitude.
10. INVERSION OF TEMPERATURE · Normal lapse rate: temperature decreases with increase in elevation. · Inversion of temperature: normal lapse rate is inverted. · The inversion takes place in hills and mountains due to air drainage. · Air drainage -The cold air acts almost like water and moves down the slope to pile up deeply in pockets and valley bottoms with warm air above under the influence of gravity. This is called air drainage · Plank's law states that hotter a body, the more energy it will radiate and shorter the wavelength of that radiation. · Specific heat is the energy needed to raise the temperature of one gram of substance by one Celsius

EXERCISE

1. Define solar radiation.
2. Explain heat budget.
3. Explain factors affecting difference of temperature in world.
4. Explain seasons with the help of diagram.
5. What is conduction, advection and convection?
6. . _____ are lines joining places having an equal temperature.

- (a) Isotherms (b) Evaporation (c) Convection (d) Isobar
7. What is normal lapse rate at 1000 metre?
(a) 4 degree Celsius (b) 2 degree Celsius (c) 1 degree Celsius (d) 6.5 degree Celsius.

Module -9

WATER IN THE ATMOSPHERE

LEARNING OUTCOMES-

1. Understanding of humidity and its importance
2. Knowledge about evaporation, condensation and precipitation
3. Understanding the conditions under fog, mist clouds and dew
4. Identification of types of clouds and rainfall.

1. Distribution of rain fall in world
2. The amount of water vapour in the atmosphere is added or withdrawn due to evaporation and condensation respectively.
3. Evaporation: It is a process by which water is transformed from liquid to gaseous state. Heat is the main cause for evaporation. The temperature at

which the water starts evaporating is referred to as the latent heat of vaporization.

4. **CONDENSATION:** The transformation of water vapour into water is called condensation. Condensation is caused by the loss of heat. When moist air is cooled, it may reach a level when its capacity to hold water vapour ceases. In free air, condensation results from cooling around very small particles termed as hygroscopic condensation nuclei. Condensation also takes place when the moist air comes in contact with some colder object and it may also take place when the temperature is close to the dew point. Condensation, therefore, depends upon the amount of cooling and the relative humidity of the air.
5. Condensation is influenced by the volume of air, temperature, pressure and humidity. Condensation takes place: 1. when both the volume and the temperature are reduced, 2. when the temperature of the air is reduced to dew point with its volume remaining constant, 3. When moisture is added to the air through evaporation. However, the most favourable condition for condensation is the decrease in air temperature.
6. After condensation the water vapour or the moisture in the atmosphere takes one of the following forms — dew, frost, fog and clouds. Condensation takes place when the dew point is lower than the freezing point as well as higher than the freezing point Dew:
7. When the moisture is deposited in the form of water droplets on cooler surfaces of solid objects such as stones, grass blades and plant leaves, it is known as dew. The ideal conditions for its formation are: 1. Calm air, 2. Clear sky, 3. Cold and long nights, 4. High relative humidity. For the formation of dew, it is necessary that the dew point is above the freezing point
8. Frost: Frost forms on cold surfaces when condensation takes place below freezing point (0°C), i.e. the dew point is at or below the freezing point. The ideal conditions for the formation of white frost are the same as those for the formation of dew, except that the air temperature must be at or below the freezing point Fog and Mist:
9. The fog is a cloud with its base at or very near to the ground. Because of the fog and mist, the visibility becomes poor to zero. In urban and industrial centers smoke provides plenty of nuclei which help the formation of fog and mist. Difference between the mist and fog: In mist each nuclei contains a thicker layer of moisture.
10. Mists are frequent over mountains as the rising warm air up the slopes meets a cold surface. Fogs are drier than mist and they are prevalent where warm currents of air come in contact with cold currents. Fogs are mini clouds in which condensation takes place around nuclei provided by the dust, smoke, and the salt particles.
11. Clouds: Cloud mass is of minute water droplets or tiny crystals of ice formed by the condensation of the water vapour in free air at considerable elevations. As the clouds are formed at some height over the surface of the earth, they take various shapes. According to their height, expanse, density

and transparency or opaqueness clouds are grouped under four types: (i) cirrus; (ii) cumulus; (iii) stratus; (iv) nimbus.

12. Types of Rainfall On the basis of origin, rainfall may be classified into three main types – 1. The cyclonic or frontal, 2. Orographic or relief 48 | P a g e 3. The convectional

EXERCISE

1. Differentiate between relative humidity and absolute humidity
2. What the different condition to form condensation?
3. In what conditions Dew and Frost forms?
4. Mention the types of rainfall in world
5. What are the different types of clouds in world?
6. Draw the diagram of relief rainfall.
7. The process of transformation of solid form of water into gaseous form is called
 - i. Condensation ii. Sublimation iii. Deposition iv. Evaporation
8. Which of the following is the highest cloud in the sky?
 - i. Stratus ii. Cumulus iii. Cirrus iv. Nimbus

Module - 10

MOVEMENT OF OCEAN WATER PART-1

LEARNING OUTCOMES-

1. Observing the ocean water movements
2. Understanding reason behind this movement of ocean water
3. Knowledge about Waves and Tides and their effects

1. Ocean waves
2. Movement of wave water
3. Structure of waves with help pf diagram
4. Importance of sea waves
5. Importance of tides
6. The ocean water is dynamic. The horizontal and vertical motions are common in ocean water.
7. The horizontal motion refers to the ocean currents and waves. The vertical motion refers to tide. Wave 1 - Waves are actually the energy, not the water as such, which moves across the ocean surface. 2 - Wind provides energy to the waves. 3 - The motion of the surface water seldom affects the stagnant deep bottom water of the ocean. 4-As a wave approaches the beach it slows down. 5- The largest waves are found in the open oceans. 6- Waves may travel thousands of km before rolling a shore, breaking and dissolving as surf. 7-Steep waves are very young ones and are probably formed by local winds. 8- Slow and steady waves originate from faraway places, possibly from another hemisphere. 9- Height of wave is determined by wind. 10-Wave travel because wind pushes the water body in its course while gravity pulls the crests of the waves downward.
8. The falling water pushes the former troughs upward, hence crests and troughs are formed. Tides 1- The periodical rise and fall of the sea level once or twice a day, mainly due to gravitational attraction of the Sun and the Moon is called tide 2- Movement of ocean water caused by wind and atmospheric pressure are called Surges, which are not regular like tides. 3- Tidal bulges occur on the Earth. For these two tidal bulges together, the gravitational force and centrifugal force are responsible. 4- On the side of the earth facing the moon a tidal bulge occurs due to gravitational attraction of the moon while on the opposite side the gravitational force is less as it is farther away, the centrifugal force causes tidal bulge on the other side. 5- The tidal bulge on wide continental shelves have greater height. When tidal bulges hit the mid oceanic islands, they become low. 6- Type of tides based on frequency are-Semi- diurnal, Diurnal and Mixed tide 7- Tides based on the Sun, the Moon and the Earth position are- Spring tide and Neap tide. 8- The tides are very important for navigators, de siltation of sediments from rivers estuaries and to generate electricity.

EXERCISE

1. What are ocean waves?
2. How are waves caused?
3. Define tides.

4. Explain the causes of tides.
5. Explain types of tides on the basis of position of sun, moon and earth.
6. How tides are important for us?
7. It is the horizontal distance between two successive crests: -
 - a) Wave length b) Wave amplitude c) Wave speed d) Wave height
8. The upward and downward movement of ocean water is known as: -
9. a) Tide b) Current c) Wave d) None of the above.

Module - 11

MOVEMENT OF OCEAN WATER PART-2

LEARNING OUTCOMES-

1. Observing the ocean water movements
2. Understanding reason behind this movement of ocean water

3. Knowledge about Ocean currents their effects
4. Location of warm and cold Ocean currents on world map.

1. Definition of ocean currents
2. Types of ocean currents on the basis of depth and temperature
3. Primary and secondary forces behind the origin of ocean currents.
4. Effects of warm and cold ocean currents in different part of world.
5. Location of different currents in Pacific, Atlantic and Indian oceans.
6. Ocean Currents 1- Ocean currents are like river flow in oceans. They represent a regular volume of water in a definite path and direction. 2- Ocean currents are influenced by two type of forces-Primary forces (heating by solar energy, wind, gravity and Coriolis force) and secondary forces (density, salinity etc).
7. -Types of ocean current based on their depth of water are-surface currents and deep-water current.
8. -Ocean current based on temperature are- cold current and warm current. Major ocean currents.
9. Indian Ocean currents Warm Correns 1- Agulhas current 2-Equatorial current 3- South Equatorial current North Atlantic Ocean Currents Warm currents 1-Gulf Stream 2 -North Atlantic Drift 3-North equatorial current Cold currents 1-Labrodor Current 2- Canaries Current. South Atlantic Ocean Current Warm currents 1 - South Equatorial Current 2-Equatorial Counter Current 3--Brazilian Current Cold currents 1- Falkland Current 2- Benguala Current
10. North Pacific Ocean Current Warm Currents 1-North Equatorial Current 2- Alaska current 3- Pacific Drift 4-Kuroshio Current Cold Currents 1. California Current 2. Oyashio Current South Pacific Ocean Currents Warm Currents 1 -South Eqautorial Current 2-Equatorial Counter Current. Cold Currents 1 Humboldt (Peru) Current 2- West Wind Drift.

EXERCISE

11. How are ocean currents caused?
12. What are the two types of ocean currents on the basis of water temperature?
13. How the ocean currents effect the temperature of NW European countries?
14. Mention two warm ocean currents of Atlantic Ocean and Pacific Ocean

BIOSPHERE AND BIODIVERSITY

LEARNING OUTCOMES-

1. Understanding of ecosystem, biosphere and biodiversity
2. Understanding of reason responsible for loss of biodiversity.
3. Developing the feelings of belongingness towards nature.

1. Ecosystem and its types.
2. Food chain and food web.
3. Biodiversity
4. Different level of biodiversity
5. Reason for the loss of biodiversity
6. Methods to conserve biodiversity.

EXERCISE

1. What do you mean by biodiversity?
2. How biodiversity is very important for us?
3. How human being are responsible for the loss of biodiversity?
4. What steps would you like to suggest to conserve biodiversity?

Module - 13

INDIA'S LOCATION

LEARNING OUTCOMES-

1. Knowledge about India's location in world map.
2. Knowledge about India's water boundaries and land frontiers.
3. Understanding of India's latitudinal and longitudinal extend.

1. Latitudinal and longitudinal extend of India.
2. India' north south distance in KM.
3. Importance of Standard meridian of India.
4. Significance of large latitudinal extension.
5. India's neighbouring countries with map.
6. Concept of Indian subcontinent.

EXERCISE

1. What is the India's longitudinal and latitudinal extend in degrees?
2. What is the significance of standard meridian of India?
3. Locate Palk strait, Gulf of kutch, Gulf of cambay, Gulf of Manaar on India's map.

Module - 14

STRUCTURE AND PHYSIOGRAPHY OF INDIA PART-1

LEARNING OUTCOMES-

1. Knowledge about India's geological history.
2. Understanding of India's physical division on map
3. Understanding of origin of Himalayas, and northern plains.
4. Knowledge of locations of physical features

1. Geological history of India
2. Evolution of Himalayas and Northern plains
3. Division of Himalaya and Northern plains
4. Physical features of Trans-Himalayas, great Himalayas, Middle and Shivalik ranges
5. Regional division of Northern plains- Bhabhar, tarai, bhangar and khadar.
6. Discussion on Ganga, Indus and Brahmaputra plains

EXERCISE

1. What do you mean by Pangea?
2. How Himalayas was formed?
3. Mention the physical features of Karakoram ranges and Middle Himalayas.
4. Mention the features of Purvanchal ranges.
5. Write one features on each regional division of Northern plains.
6. Where is Loktak lake located?

Module - 15

STRUCTURE AND PHYSIOGRAPHY OF INDIA PART-2

LEARNING OUTCOMES-

1. Knowledge about India's geological history.
2. Understanding of India's physical division on map
3. Understanding of origin of peninsular plateau, and coastal plains and Island groups.
4. Knowledge of locations of physical features

1. Geological history of India
2. Evolution of coastal plains.
3. Division of Himalaya and Northern plains
4. Physical features of Central highland, deccan plateau, eastern coastal plains, western coastal plains
5. Discussion on Andaman and Nicobar group of Island and Lakshdweep Island

EXERCISE

1. Name the two division of peninsular plateau.
2. What are the types of coastal plains?
3. Which is the highest peak of western Ghats?
4. Mention two plateaus found in central highland.
5. Which physical division is known as Marusthali?

6. If a person is to travel to Lakshadweep from which coastal plain does he prefer.

DAY- 16

DRAINAGE SYSTEM PART-1

LEARNING OUTCOMES-

1. Knowledge about origin and flow of rivers
2. Understanding of drainage pattern
3. Understanding of drainage system
4. Practice of river map

1. Definition of drainage pattern, drainage and drainage system
2. Types of drainage pattern-dendritic, radial, trellis and rectangular
3. Drainage basin and water shed
4. Indian drainage system classification on the basis of discharge of water and on the basis of size of water shed
5. Himalayan river system
6. Origin length tributaries and mouth of Indus, Jhelam, Chenab, Ravi, Satluj, Ganga, Yamuna, Brahmaputra, Chambal, Damodar rivers

EXERCISE

1. Name the tributaries of Ganga river
2. Which river drainage pattern resembling the branches of tree?
3. Name Himalayan tributaries of Indus river
4. At which place Yamuna river joins Ganga?
5. Name the states which are drained by the river Damodar.

6. Which river is called sorrow of Bihar?

DAY- 17

DRAINAGE SYSTEM PART-2

LEARNING OUTCOMES-

1. Knowledge about origin and flow of rivers
2. Understanding of drainage pattern peninsular plateau rivers
3. Understanding of drainage system peninsular rivers
4. Practice of river map

1. Evolution of peninsular drainage system
2. River systems of peninsular drainage
3. Smaller rivers going towards the west
4. Smaller rivers going towards the east
5. Origin length and tributaries of Godavari, Krishna, Kaveri, Narmada, Tapi, Mahanadi, Luni, Chambal rivers
6. Problems of river water and their solutions

EXERCISE

1. What are the socio-economic advantages of inter-linking of rivers in India?

2. Write three characteristics of peninsular river?
3. Which river is called Dakshin ganga?
4. Which river is called sorrow of Bengal?
5. Which river flows in a rift valley?
6. Differentiate between delta and estuary

DAY- 18

CLIMATE OF INDIA

LEARNING OUTCOMES-

1. Understanding of weather and climate
2. Understanding of diversity in Indian climate
3. Knowledge about ITCZ, Jet Stream and EL-Nino.

1. UNITY AND DIVERSITY IN THE MONSOON CLIMATE

- The monsoon regime emphasises the unity of India with the rest of southeast Asian region. · This view of broad unity of the monsoon type of climate should not, however, lead one to ignore its regional variations which differentiate the weather and climate of different regions of India.
- The climate of Kerala and Tamil Nadu in the south are so different from that of Uttar Pradesh and Bihar in the north, and yet all of these have a monsoon type of Climate. · The climate of India has many regional variations.
- On a December night, temperature in Drass (Ladakh) may drop down to minus 45°C while Tiruvananthapuram or Chennai on the same night records 20°C.
- While snowfall occurs in the Himalayas, it only rains over the rest of the country.

· While Cherrapunji and Mawsynram in the Khasi Hills of Meghalaya receive rainfall over 1,080 cm in a year, Jaisalmer in Rajasthan rarely gets more than 9 cm of rainfall during the same period.

2. **FACTORS DETERMINING THE CLIMATE OF INDIA**
 1. Factors related to Location and Relief: - · Latitude. · The Himalayan Mountains. · Distribution of Land and Water. · Distance from the Sea. · Altitude. · Relief.
 2. Factors Related to Air Pressure and Wind.
3. To understand the differences in local climates of India, we need to understand the mechanism of the following three factors: · Distribution of air pressure and winds on the surface of the earth. · Upper air circulation caused by factors controlling global weather and the inflow of different air masses and jet streams. · Inflow of western cyclones generally known as disturbances during the winter season and tropical depressions during the south-west monsoon period into India, creating weather conditions favourable to rainfall.
4. The mechanism of these three factors can be understood with reference to winter and summer seasons of the year separately. Mechanism of Weather in the Winter Season: - Surface Pressure and Winds: · A high pressure centre in the region lying to the north of the Himalayas develops during winter. · The surface winds blowing out of the high-pressure centre over Central Asia reach India in the form of a dry continental air mass.
5. Jet Stream and Upper Air Circulation: · All of Western and Central Asia remains under the influence of westerly winds along the altitude of 9-13 km from west to east. · These winds blow across the Asian continent at latitudes north of the Himalayas roughly parallel to the Tibetan highlands are known as jet streams.
6. Western Cyclonic Disturbance and Tropical Cyclones: · The western cyclonic disturbances which enter the Indian subcontinent from the west and the northwest during the winter months, originate over the Mediterranean Sea.
7. · Tropical cyclones originate over the Bay of Bengal and the Indian ocean. These tropical cyclones have very high wind velocity and heavy rainfall and hit the Tamil Nadu, Andhra Pradesh and Orissa coast. Mechanism of Weather in the Summer Season ·
8. By the middle of July, the low-pressure belt nearer the surface [termed as Inter Tropical Convergence Zone (ITCZ)] shifts northwards, roughly parallel to the Himalayas between 20° N and 25° N.:
9. Jet Streams and Upper Air Circulation: · An easterly jet stream flows over the southern part of the Peninsula in June, and has a maximum speed of 90 km per hour. · In August, it is confined to 15° latitude, and in September up to 22° N latitudes. Easterly Jet Stream and Tropical Cyclones: · The easterly jet stream steers the tropical depressions into India. · The tracks of these depressions are the areas of highest rainfall in India.
10. **THE NATURE OF INDIAN MONSOON** Systematic studies of the causes of rainfall in the South Asian region help to understand the causes and salient features of the monsoon, particularly some of its important aspects, such

as: (i) The onset of the monsoon. (ii) Rain-bearing systems (e.g. tropical cyclones) and the relationship between their frequency and distribution of monsoon rainfall. Break in the monsoon. During the south-west monsoon period after having rains for a few days, if rain fails to occur for one or more weeks, it is known as break in the monsoon. These dry spells are quite common during the rainy season. These breaks in the different regions are due to different reasons: (i) In northern India rains are likely to fail if the rain-bearing storms are not very frequent along the monsoon trough or the ITCZ over this region. (ii) Over the west coast the dry spells are associated with days when winds blow parallel to the coast.

11. THE RHYTHM OF SEASONS 99 | Page the meteorologists recognise the following four seasons: - (i) the cold weather season (ii) the hot weather season (iii) the southwest monsoon season (iv) the retreating monsoon season
12. During October and November, northeast monsoon while crossing over 100 | Page the Bay of Bengal, picks up moisture and causes torrential rainfall over the Tamil Nadu coast, southern Andhra Pradesh, southeast Karnataka and southeast Kerala.
13. The Hot Weather Season: - Temperature· The summer months are a period of excessive heat and falling air pressure in the northern half of the country. · In the heart of the ITCZ in the northwest, the dry and hot winds known as 'Loo', blow in the afternoon. · These local storms are associated with violent winds, torrential rains and even hailstorms. Some Famous Local Storms of Hot Weather Season (i) Mango Shower: Towards the end of summer, there are pre-monsoon showers which are a common phenomenon in Kerala and coastal areas of Karnataka. Locally, they are known as mango showers since they help in the early ripening of mangoes. (ii) Blossom Shower: With this shower, coffee flowers blossom in Kerala and nearby areas. (iii) Nor Westers: These are dreaded evening thunderstorms in Bengal and Assam. Their notorious nature can be understood from the local nomenclature of 'Kalbaisakhi', a calamity of the month of Baisakh. These showers are useful for tea, jute and rice cultivation. In Assam, these storms are known as "BardoliChheerha". (iv) Loo: Hot, dry and oppressing winds blowing in the Northern plains from Punjab to Bihar with higher intensity between Delhi and Patna.
14. THE SOUTHWEST MONSOON SEASON · The rain in the southwest monsoon season begins rather abruptly. · This sudden onset of the moisture-laden winds associated with violent thunder and lightning, is often termed as the "break" or "burst". · The monsoon may burst in the first week of June in the coastal areas of Kerala, Karnataka, Goa and Maharashtra. · The monsoon approaches the landmass in two branches: (i) The Arabian Sea branch (ii) The Bay of Bengal branch.
15. Characteristics of Monsoonal Rainfall · Rainfall received from the southwest monsoons is seasonal in character, which occurs between June and September.

· Monsoonal rainfall is largely governed by relief or topography. · The monsoon rainfall has a declining trend with increasing distance from the sea.

· The summer rainfall comes in a heavy downpour leading to considerable run off and soil erosion. · Its spatial distribution is also uneven which ranges from 12 cm to more than 250 cm. · The beginning of the rains sometimes considerably delayed over the whole or a part of the country. Season of Retreating Monsoon

· The months of October and November are known for retreating monsoons.

· The monsoon retreats from the western Rajasthan by the first week of September. · By the middle of December, the centre of low pressure is completely removed from the Peninsula.

· The retreating southwest monsoon season is marked by clear skies and rise in temperature.

· The widespread rain in this season is associated with the passage of cyclonic depressions which originate over the Andaman Sea and manage to cross the eastern coast of the southern Peninsula.

· A bulk of the rainfall of the Coromondal coast is derived from these depressions and cyclone

EXERCISE

1. What do you mean by Jet stream?
2. What do you mean EL-Nino?
3. What do you mean by western disturbance?
4. What is ITCZ?
5. Explain factors affecting climate of India.
6. Explain the mechanism of monsoon
7. Define mango shower, blossom shower and loo
8. Explain the branches of monsoon winds in India
9. What do you mean by breaking and busting of monsoon?

DAY- 19

INDIAN FORESTS, CLASSIFICATION AND CONSERVATION

LEARNING OUTCOMES-

1. Knowledge of natural vegetation and its significance
2. Understanding of factors affecting distribution of forests in India
3. Understanding of distribution of forests in India
4. Open discussion deforestation and conservation of forests

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1. TYPES OF FOREST Indian forests can be divided into the following groups/types 1. 1.TROPICAL EVERGREEN AND SEMI EVERGREEN FORESTS
 2. TROPICAL DECIDUOUS FOREST
 - 3.TROPICAL THORN FOREST
 4. MONTANE FOREST
 5. LITTORAL AND SWAMP FOREST

2. FOREST CONSERVATION

Conservation of forests is of vital importance to the survival and prosperity of humankind. India adopted a First Forest Policy in 1952 which was further modified in 1988. following Based on the Forest conservation policy the following steps were initiated. Social Forestry Social Forestry means management and Protection of forests and afforestation on barren lands with the purpose of helping in environmental social and rural development. Social Forestry has classified into three categories, i. Urban Forestry ii. Rural Forestry

iii. Farm Forestry Farm Forestry is a term applied to the process under which farmers grow trees for commercial and non- commercial purposes on their farm lands.

EXERCISE

1. Explain Factors affecting distribution of forests in India
2. Write three characteristics of desert vegetation.
3. What do you mean by social forestry?
4. What steps have been taken to conserve forests?
5. How can people's participation be effective in conserving forests?
6. Mention two species of tropical evergreen forests.
7. Mention two species of tropical deciduous forests.

DAY- 20

WILDLIFE AND CONSERVATION

LEARNING OUTCOMES-

1. Knowledge about importance of wildlife
2. Understanding the problems of declining of wildlife
3. Understanding of methods to conserve wildlife

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1. Wild Life it is estimated that about 4-5 per cent of all known plants and animal species on the earth are found in India.
 2. Major reasons of the declining wildlife i. Industrial & Technological advancement ii. Deforestation iii. Over grazing iv. Hunting v. Forest fire incidents Wildlife Conservation in India In 1972 a comprehensive wildlife Act was enacted which provides the main legal framework for Conservation and Protection of wildlife in India.
 3. There are 101 National Parks & 583 wildlife sanctuaries in the country. Special schemes like Project Tiger (1973) and Project Elephant (1992) have been launched to conserve these species in their habitat in a sustainable manner.
 4. Biosphere Reserve Biosphere Reserve is a unique and representative ecosystem of terrestrial and coastal areas, which are internationally recognised within the Framework of UNESCO's Man and Biosphere (MAB) Programme. The Biosphere Reserve aims to achieving the three objectives Conservation, Development and Logistics.

EXERCISE

1. Explain Important reasons of declining wildlife
2. What do you mean by Tiger Project?
3. What are biosphere reserves?
4. Suggest methods to conserve wildlife in India
5. Locate biosphere reserve on India's outline map

DAY- 21

SOIL

LEARNING OUTCOMES-

1. Knowledge about types of soil on the basis of color and composition
 2. Understanding of formation of different types of soil

3. Understanding of characteristics of different types of soil
4. Discussion on soil erosion and soil conservation

1. THE MAJOR FACTORS AFFECTING THE FORMATION OF SOIL:
1. relief, 2. parent material, 3. climate, 4. vegetation 5. life-forms and 6. time.
7. human activities
2. SOIL TYPES: -
3. Alluvial Soils 1. Alluvial soils are widespread in the northern plains and the river valleys. 2. These soils cover about 40 per cent of the total area of the country. 3. They are depositional soils, transported and deposited by rivers and streams. 4. Through a narrow corridor in Rajasthan, they extend into the plains of Gujarat. 5. In the Peninsular region, they are found in deltas of the east coast and in the river valleys. 6. They are generally rich in potash but poor in phosphorous. 7. In the Upper and Middle Ganga plain, two different types of alluvial soils have developed, viz. Khadar and Bhangar. Khadar is the new alluvium and is deposited by floods annually, which enriches the soil by depositing fine silts. 8. Bhangar represents a system of older alluvium, deposited away from the flood plains.
4. Black Soil 1. Black soil covers most of the Deccan Plateau which includes parts of Maharashtra, Madhya Pradesh, Gujarat, Andhra Pradesh and some parts of Tamil Nadu. 2. These soils are also known as the Regur Soil 'or the Black Cotton Soil '. 3. The black soils are generally clayey, deep and impermeable. 4. They swell and become sticky when wet and shrink when dried. So, during the dry season, these soils develop wide cracks. 5. Chemically, the black soils are rich in lime, iron, magnesia and alumina.
- Red and Yellow Soil 1. Red soil develops on crystalline igneous rocks in areas of low rainfall in the eastern and southern part of the Deccan Plateau. 2. Along the piedmont zone of the Western Ghat, long stretch of area is occupied by red loamy soil.
5. Yellow and Red soils are also found in parts of Odisha and Chattisgarh and in the southern parts of the middle Ganga plain. 3. The soil develops a reddish colour due to a wide diffusion of iron in crystalline and metamorphic rocks. 4. It looks yellow when it occurs in a hydrated form. 5. The fine-grained red and yellow soils are normally fertile,
6. Laterite Soil 1. Laterite has been derived from the Latin word Later which means brick. 2. The laterite soils develop in areas with high temperature and high rainfall. 3. These are the result of intense leaching due to tropical rains. 4. With rain, lime and silica are leached away, and soils rich in iron oxide and aluminium compound are left behind. 5. These soils are poor in organic matter, nitrogen, phosphate and calcium, while iron oxide and potash are in excess. 6. Hence, laterites are not suitable for cultivation; however, application of manures and fertilizers are required for making the soils fertile for cultivation. 7. Red laterite soils in Tamil Nadu, Andhra Pradesh and Kerala are more suitable for tree crops like cashew. 8. Laterite soils are

widely cut as bricks for use in house construction. These soils have mainly developed in the higher areas of the Peninsular plateau.

7. SOIL EROSION AND CONSERVATIONS

1. The destruction of the soil cover is described as soil erosion. The soil forming processes and the erosional processes of running water and wind go on simultaneously.

2. Forest and other natural vegetation is removed for human settlement, for cultivation, for grazing animals and for various other needs.

3. Wind erosion is significant in arid and semi-arid regions.

4. In regions with heavy rainfall and steep slopes, erosion by running water is more significant.

5. Water erosion which is more serious and occurs extensively in different parts of India, takes place mainly in the form of sheet and gully erosion.

6. Sheet erosion takes place on level lands after a heavy shower and the soil removal is not easily noticeable.

7. But it is harmful since it removes the finer and more fertile top soil. Gully erosion is common on steep slopes.

8. Gullies deepen with rainfall, cut the agricultural lands into small fragments and make them unfit for cultivation.

9. A region with a large number of deep gullies or ravines is called a badland topography. Ravines are widespread, in the Chambal basin.

10. Besides this, they are also found in Tamil Nadu and West Bengal.

11. The country is losing about 8,000 hectares of land to ravines.

12. Deforestation is one of the major causes of soil erosion.

8. SOIL CONSERVATION PRACTICES: -

Contour farming Strip cropping, Wind break crop rotation, controlling grazing cover cropping, mixed farming etc.

EXERCISE

1. Which soil is called regur soil?
2. Mention two characteristics of laterite soil
3. What is soil degradation?
4. Differentiate between khadar and bhangra
5. Suggest some methods to conserve soil
6. Locate black soil and alluvial soil on India's map.