

UNIT II
GEOGRAPHY
(SECOND HALF)
CLASS IX (2017-18)

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THE INDIAN SCHOOL BAHRAIN

Chapter IV CLIMATE

1. Explain the term Weather and Climate.

Weather refers to the condition of the atmosphere like, temperature, atmospheric pressure, wind, humidity and precipitation over an area at any point of time.

Climate refers to the sum total of weather conditions and variations over a large area for a long period of time (more than thirty years).

2. What are the elements of weather and climate?

The elements of weather and climate are the same, i.e temperature, atmospheric pressure, wind, humidity and precipitation.

3. What is meant by seasons?

There is some common pattern of the atmospheric conditions over a few weeks or months, i.e. days are cool or hot, windy or calm, cloudy or bright, and wet or dry. On the basis of the generalised monthly atmospheric conditions, the year is divided into seasons such as winter, summer or rainy seasons.

4. Describe the climate of India.

i) The climate of India is described as the 'monsoon' type. This type of climate is found mainly in the south and the Southeast Asia. We get ample rain fall during the months of June- July to September –October.

ii) The Tropic of Cancer passes through the middle of the country from the Rann of Kuchchh in the west to Mizoram in the east. Almost half of the country, lying south of the Tropic of Cancer, belongs to the tropical area. All the remaining area, north of the Tropic, lies in the sub-tropics. Therefore, India's climate has characteristics of tropical as well as subtropical climates.

5. Describe the regional variations in temperature and precipitations in India.

a. In summer, the temperature occasionally reaches 50°C in some parts of the Rajasthan desert, whereas it may be around 20°C in Pahalgam in Jammu and Kashmir. On a winter night, temperature at Drass in Jammu and Kashmir may be as low as minus 45°C. Tiruvananthapuram, in Kerala, on the other hand, may have a temperature of 22°C.

b. While precipitation is mostly in the form of snowfall in the upper parts of Himalayas, it rains over the rest of the country. The annual precipitation varies from over 400 cm in Meghalaya to less than 10 cm in Ladakh and western Rajasthan.

c. Most parts of the country receive rainfall from June to September. But some parts like the Tamil Nadu coast get most of its rain during October and November.

6. Explain the climatic control of a place. (or the factors affecting the climate of a place)

i) **Latitude:** Due to the curvature of the earth, the amount of solar energy received varies according to latitude. As a result, air temperature decreases from the equator towards the poles.

ii) **Altitude:** As one goes from the surface of the earth to higher altitudes, the atmosphere becomes less dense and temperature decreases. The hills are therefore cooler during summers.

iii) **The pressure and wind system:** The pressure and wind system of any area depend on the latitude and altitude of the place. Thus it influences the temperature and rainfall pattern.

iv) **The distance from the sea:** The sea exerts a moderating influence on climate: As the distance from the sea increases, its moderating influence decreases and the people experience extreme weather conditions. **This condition is known as continentality** (i.e. very hot during summers and very cold during winters).

- v) **Ocean currents:** Ocean currents along with onshore winds affect the climate of the coastal areas. For example, any coastal area with warm or cold currents flowing past it, will be warmed or cooled if the winds are onshore.
- vi) **Relief:** Relief too plays a major role in determining the climate of a place. High mountains act as barriers for cold or hot winds; they may also cause precipitation if they are high enough and lie in the path of rain-bearing winds.

7. Describe the factors affecting India's climate.

The climate and associated weather conditions in India are governed by:

- a. **Latitude:** The Tropic of Cancer passes through the middle of the country from the Rann of Kuchchh in the west to Mizoram in the east. Almost half of the country, lying south of the Tropic of Cancer, belongs to the tropical area. All the remaining area, north of the Tropic, lies in the sub-tropics. Therefore, India's climate has characteristics of tropical as well as subtropical climates.
- b. **Altitude:** India has mountains to the north, which have an average height of about 6,000 metres. India also has a vast coastal area where the maximum elevation is about 30 metres. The Himalayas prevent the cold winds from Central Asia from entering the subcontinent. It is because of these mountains that this subcontinent experiences comparatively milder winters as compared to central Asia.
- c. **Pressure and Winds:** It includes pressure and surface winds, Upper air circulation and western cyclonic disturbances and tropical cyclones. India lies in the region of north easterly winds. These winds originate from the subtropical high-pressure belt of the northern hemisphere. Generally, these winds carry very little moisture as they originate and blow over land. Therefore, they bring little or no rain. Hence, India should have been an arid land, but, it is not so. During winter, there is a high-pressure area north of the Himalayas. Cold dry winds blow from this region to the low-pressure areas over the oceans to the south. In summer, a low-pressure area develops over interior Asia as well as over northwestern India. This causes a complete reversal of the direction of winds during summer. These winds blow over the warm oceans, gather moisture and bring widespread rainfall over the mainland of India. The western cyclonic disturbances experienced in the north and north-western parts of the country are brought in by this westerly flow.

8. **Why do we have (India) tropical and sub-tropical climate?**

The Tropic of Cancer passes through the middle of the country from the Rann of Kuchchh in the west to Mizoram in the east. Almost half of the country, lying south of the Tropic of Cancer, belongs to the tropical area. All the remaining area, north of the Tropic, lies in the sub-tropics. Therefore, India's climate has characteristics of tropical as well as subtropical climates.

9. **Why does India experience milder winter than central Asia?**

India has mountains to the north, which have an average height of about 6,000 metres. India also has a vast coastal area where the maximum elevation is about 30 metres, that act as a moderating factor. The Himalayas prevent the cold winds from Central Asia from entering the subcontinent. It is because of these mountains that this subcontinent experiences comparatively milder winters as compared to central Asia.

10. What is meant by Coriolis force?

An apparent force caused by the earth's rotation. The Coriolis force is responsible for deflecting winds towards the right in the northern hemisphere and towards the left in the southern hemisphere. This is also known as 'Ferrel's Law'.

11. What are Jet Streams?

These are fast blowing winds of a steady velocity moving in a narrow zone of the upper layer of the atmosphere. Their speed varies from about 110 km/h in summer to about 184 km/h in winter. Jet streams are located approximately over 27°-30° north latitude, therefore, they are known as *subtropical westerly jet streams*. A number of separate jet streams have been identified. The most constant are the mid-latitude and the sub tropical jet stream. The western cyclonic disturbances experienced in the north and north-western parts of the country are brought in by this westerly flow.

12. Which are the important facts to keep in mind to understand the mechanism of Monsoon?

- a. **The differential heating and cooling of land and water** creates low pressure on the landmass of India while the seas around experience comparatively high pressure.
- b. **The shift of the position of Inter Tropical Convergence Zone (ITCZ)** in summer, over the Ganga plain (this is the equatorial trough normally positioned about 5°N of the equator – also known as the monsoon trough during the monsoon season).
- c. The presence of the **high-pressure area, east of Madagascar**, approximately at 20°S over the Indian Ocean. The intensity and position of this high-pressure area affects the Indian Monsoon.
- d. The **Tibetan plateau gets intensely heated** during summer, which results in strong vertical air currents and the formation of high pressure over the plateau at about 9 km above sea level.
- e. **The movement of the westerly jet stream to the north of the Himalayas** and the presence of the **tropical easterly jet stream over the Indian peninsula** during summer.

13. What is meant by Southern Oscillation?

Normally when the tropical eastern South Pacific Ocean experiences high pressure, the tropical eastern Indian Ocean experiences low pressure. But in certain years, there is a reversal in the pressure conditions and the eastern Pacific has lower pressure in comparison to the eastern Indian Ocean. This periodic change in pressure conditions is known as the Southern Oscillation.

14. What is ‘the burst of the monsoon’?

The duration of rain in India is between 100-120 days from early June to mid-September. Around the time of its arrival, the normal rainfall increases suddenly and continues constantly for several days. This is known as the ‘burst’ of the monsoon.

15. What are the features of the Cold Weather Season (Winter)?

- i) The cold weather season begins from mid- November in northern India and stays till February. December and January are the coldest months in the northern part of India. The temperature decreases from south to the north.
- ii) The average temperature of Chennai, on the eastern coast, is between 24° - 25° Celsius, while in the northern plains, it ranges between 10° -15° Celsius. Days are warm and nights are cold. Frost is common in the north and the higher slopes of the Himalayas experience snowfall.
- iii) During this season, the northeast trade winds prevail over the country. They blow from land to sea and hence, for most part of the country, it is a dry season. Some amount of rainfall occurs on the Tamil Nadu coast from these winds as, here they blow from sea to land.
- iv) A characteristic feature of the cold weather season over the northern plains is the inflow of cyclonic disturbances from the west and the northwest. These low-pressure systems, originate over the Mediterranean Sea and western Asia and move into India, along with

the westerly flow. They cause the much-needed winter rains over the plains and snowfall in the mountains. Although the total amount of winter rainfall locally known as '*mahawat*' is small, they are of immense importance for the cultivation of '*rabi*' crops.

16. Why does Tamil Nadu receive winter rain fall?

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17. What are the features of the Hot Weather Season (Summer)?

- i) From March to May, it is hot weather season in India. In March, the highest temperature is about 38° Celsius, recorded on the Deccan plateau. In April, temperatures in Gujarat and Madhya Pradesh are around 42° Celsius. In May, temperature of 45° Celsius is common in the northwestern parts of the country.
- ii) A striking feature of the hot weather season is the '*loo*'. These are strong, gusty, hot, dry winds blowing during the day over the north and north western India. Sometimes they even continue until late in the evening. Direct exposure to these winds may even prove to be fatal.
- iii) Dust storms are very common during the month of May in northern India. These storms bring temporary relief as they lower the temperature and may bring light rain and cool breeze.
- iv) This is also the season for localised thunderstorms, associated with violent winds, torrential downpours, often accompanied by hail. In West Bengal, these storms are known as the '*Kaal Baisakhi*' calamity for the month of Baisakh.
- v) Towards the close of the summer season, pre-monsoon showers are common especially, in Kerala and Karnataka. They help in the early ripening of mangoes, and are often referred to as '*mango showers*'.

18. What are the four main seasons in India?

Four main seasons can be identified in India – the cold weather season, the hot weather season, the advancing monsoon and the retreating monsoon with some regional variations.

19. What is a loo?

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20. What is meant by 'Kaal Baisakhi'?

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21 What are "Mango Showers"?

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22. Explain the features of Advancing Monsoon or the Rainy Season.

- i) The monsoon rains take place only for a few days at a time. They are interspersed with rainless intervals. The breaks in monsoon are related to the movement of the monsoon trough. When the axis of the monsoon trough lies over the plains, rainfall is good in these parts.

- ii) On the other hand, whenever the axis shifts closer to the Himalayas, there are longer dry spells in the plains, and widespread rain occur in the mountainous catchment areas of the Himalayan rivers. These heavy rains bring in their wake, devastating floods causing damage to life and property in the plains. The frequency and intensity of tropical depressions too, determine the amount and duration of monsoon rains.
- iii) The monsoon is known for its uncertainties. These are untimely, irregular, unpredictable and unevenly distributed. The alternations of dry and wet spells vary in intensity, frequency and duration. While it causes heavy floods one part, it may be responsible for droughts in the other. It is often irregular in its arrival and its retreat. Hence, it sometimes disturbs the farming schedule of millions of farmers all over the country.

23. What are the vagaries of Indian Monsoon?

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24. What are the features of Retreating Monsoon?

- i) During October-November, with the apparent movement of the sun towards the south, the monsoon trough or the low-pressure trough over the northern plains becomes weaker. This is gradually replaced by a high-pressure system. The south-west monsoon winds weaken and start withdrawing gradually. By the beginning of October, the monsoon withdraws from the Northern Plains.
- ii) The months of October-November form a period of transition from hot rainy season to dry winter conditions. The retreat of the monsoon is marked by clear skies and rise in temperature. While day temperatures are high, nights are cool and pleasant. The land is still moist. Owing to the conditions of high temperature and humidity, the weather becomes rather oppressive during the day. This is commonly known as 'October heat'.
- iii) In the second half of October, the temperature begins to fall rapidly in northern India. The low-pressure conditions, over northwestern India, get transferred to the Bay of Bengal by early November. This shift is associated with the occurrence of cyclonic depressions, which originate over the Andaman Sea.
- iv) These cyclones generally cross the eastern coasts of India and cause heavy and wide spread rain. These tropical cyclones are often very destructive. The thickly populated deltas of the Godavari, the Krishna and the Kaveri are frequently struck by cyclones, which cause great damage to life and property. Sometimes, these cyclones arrive at the coasts of Orissa, West Bengal and Bangladesh. The bulk of the rainfall of the Coromandel Coast is derived from depressions and cyclones.

25 Describe the distribution of rainfall in India.

- i) The western coast and northeastern India receive over about 400 cm of rainfall annually. However, it is less than 60 cm in western Rajasthan and adjoining parts of Gujarat, Haryana and Punjab. Mawsynram, in the southern range of the Khasi hills receives the highest average rainfall in the world.
- ii) Rainfall is equally low in the interior of the Deccan plateau, and east of the Sahyadris. A third area of low precipitation is around Leh in Jammu and Kashmir. The rest of the country receives moderate rainfall.
- iii) Snowfall is restricted to the Himalayan region. Owing to the nature of monsoons, the annual rainfall is highly variable from year to year. Variability is high in the regions of low rainfall such as parts of Rajasthan, Gujarat and the leeward side of the Western Ghats.

As such, while areas of high rainfall are liable to be affected by floods, areas of low rainfall are drought-prone.

26. What is meant by the October – heat?

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27. Why the deltas of the Godawari, the Krishna and the Kaveri are frequently struck by cyclones?

The low-pressure conditions, over northwestern India, get transferred to the Bay of Bengal by early November. This shift is associated with the occurrence of cyclonic depressions, which originate over the Andaman Sea. These cyclones generally cross the eastern coasts of India, including the deltas of the Godawari and the Krishna and the Kaveri, cause heavy and widespread rain. These tropical cyclones are often very destructive. The thickly populated deltas of the Godavari, the Krishna and the Kaveri are frequently struck by cyclones, which cause great damage to life and property. Sometimes, these cyclones arrive at the coast of Orissa, West Bengal and Bangladesh. The bulk of the rainfall of the Coromandel Coast is derived from depressions and cyclones.

28. How does Monsoon act as a Unifying Bond?

The seasonal alteration of the wind systems and the associated weather conditions provide a rhythmic cycle of seasons. Even the uncertainties of rain and uneven distribution are very much typical of the monsoons. The Indian landscape, its animal and plant life, its entire agricultural calendar and the life of the people, including their festivities, revolve around this phenomenon. Year after year, people of India from north to south and from east to west, eagerly await the arrival of the monsoon.

29. What is the impact of variation in the climatic conditions in India?

The variations have given rise to a variety in the lives of people- their food, clothing, housing, etc. Its impact is seen the main economic activity i.e. the agriculture, sowing and harvesting a variety of crops in India. Even the uncertainties of rain and uneven distribution are very much typical of the monsoons. The Indian landscape, its animal and plant life, its entire agricultural calendar and the life of the people, including their festivities, revolve around this phenomenon.

30. Why do Peninsular plateau get moderate temperature but the northern plain not?

Due to the triangular shape of the peninsular plateau, the moderating influence of the surrounding ocean and the sea extent over a large area. The presence of wind in this area moderates both the low and high temperature. The northern plain being away from the sea do not have any moderating influence.

31. What role does Himalayas play in the modification of the climate in India?

- i) The Himalayas protect the Indian sub-continent from the cold and chilly northern winds which originate in Central Asia. It is because of this mountain that India enjoys a comparatively warmer climate during winter and the temperature differences are minimized between the tropical and sub-tropical India.
- ii) We receive ample rain fall in India due to the presence of the Himalayas which prevent the rain bearing winds to cause wide spread rain fall in India especially in the north eastern parts .

32. Why does seasonal reversal of wind direction take place over the Indian sub-continent?

- i) During winter, there is a high-pressure area north of the Himalayas. Cold dry winds blow from this region to the low-pressure areas over the oceans to the south.

- ii) In summer, a low-pressure area develops over interior Asia as well as over northwestern India. Air now starts moving from a high pressure area located over the Indian Ocean in the south to the low pressure area in the north. This causes a complete reversal of the direction of winds during summer.
- iii) These winds blow over the warm oceans, gather moisture and bring widespread rainfall over the mainland of India. The western cyclonic disturbances experienced in the north and north-western parts of the country are brought in by this westerly flow.

Chapter 5 -NATURAL VEGETATION AND WILD LIFE

1. Write a short note on the bio diversity in India.

- Our country India is one of the twelve mega bio-diversity countries of the world. With about 47,000 plant species India occupies tenth place in the world and fourth in Asia in plant diversity.
- There are about 15,000 flowering plants in India which account for 6 per cent in the world's total number of flowering plants.
- The country has many non-flowering plants such as ferns, algae and fungi. India also has 89,000 species of animals as well as a rich variety of fish in its fresh and marine waters.

2. What meant by natural vegetation or virgin vegetation?

- Natural vegetation refers to a plant community which has grown naturally without human aid and has been left undisturbed by humans for a long time.
- This is termed as **virgin vegetation**. Thus, cultivated crops and fruits, orchards form part of vegetation but not natural vegetation.

3. Differentiate between flora and fauna.

- The term **flora** is used to denote plants of a particular region or period. All the flowering and non-flowering plants from a tiny fungus to a creeper to a big tree is called flora.
- The species of animals are referred to as **fauna**. All the animal species starting from a tiny bacteria to a big elephant is called fauna.

4. What are the factors that affect (distribution of plants and animals) biodiversity in India?

A. RELIEF

i) Land: Land affects the natural vegetation directly and indirectly. The nature of land influences the type of vegetation. The fertile level land is generally devoted to agriculture. The undulating and rough terrains are areas where grassland and woodlands develop and give shelter to a variety of wild life.

ii) Soil: The soils also vary over space. Different types of soils provide basis for different types of vegetation. The sandy soils of the desert support cactus and thorny bushes while wet, marshy, deltaic soils support mangroves and deltaic vegetation. The hill slopes with some depth of soil have conical trees.

B. CLIMATE

i) **Temperature**: The character and extent of vegetation are mainly determined by temperature along with humidity in the air, precipitation and soil. On the slopes of the Himalayas and the hills of the Peninsula above the height of 915 metres, the fall in the temperature affects the types of vegetation and its growth, and changes it from tropical to subtropical temperate and alpine vegetation.

ii) Photoperiod (Sunlight): The variation in duration of sunlight at different places is due to differences in latitude, altitude, season and duration of the day. Due to longer duration of sunlight, trees grow faster in summer.

iii) Precipitation: In India almost the entire rainfall is brought in by the advancing southwest monsoon (June to September) and retreating northeast monsoons. Areas of heavy rainfall have more dense vegetation as compared to other areas of less rainfall.

5. How are forests useful to human being?

Forests are renewable resources and play a major role in enhancing the quality of environment. They modify local climate, control soil erosion, regulate stream flow, support a variety of industries, provide livelihood for many communities and offer panoramic or scenic view for recreation. It controls wind force and temperature and causes rainfall. It provides humus to the soil and shelter to the wild life.

6. What are the factors that brought changes to natural vegetation in India?

India's natural vegetation has undergone many changes due to several factors such as the growing demand for cultivated land, development of industries and mining, urbanisation and over-grazing of pastures.

7. Why is natural vegetation in large part of India no more natural?

The vegetation covers of India in large parts are no more natural in the real sense. Except some inaccessible regions like the Himalayas the hilly region of central India and the *Marusthali*, (desert) the vegetation of most of the areas has been modified at some places, or replaced or degraded by human occupancy.

8. What is meant by ecosystem?

- All the plants and animals in an area are interdependent and interrelated to each other in their physical environment, thus, forming an ecosystem.
- Human beings are also an integral part of the ecosystem.

9. How do the human beings influence the ecology of a region?

They utilise the vegetation and wild life. The greed of human beings leads over utilisation of these resources. They cut the trees and kill the animals creating ecological imbalance. As a result some of the plants and animals have reached the verge of extinction.

10. Define biome and vegetation.

A very large ecosystem on land having distinct types of vegetation and animal life is called a **biome**. The biomes are identified on the basis of plants.

The assemblage of plant species living in association with each other in given environmental framework is termed as **vegetation**.

11. Name the different types of vegetation in India.

The following major types of vegetation may be identified in India.

- (i) Tropical Rain Forests
- (ii) Tropical Deciduous Forests
- (iii) Tropical Thorn Forests and Scrubs
- (iv) Montane Forests
- (v) Mangrove Forests

12. What are the features of tropical rain forests?

- These forests are restricted to heavy rainfall areas of the Western Ghats and the island groups of Lakshadweep, Andaman and Nicobar, upper parts of Assam and Tamil Nadu coast.
- They are at their best in areas having more than 200 cm of rainfall with a short dry season. The trees reach great heights up to 60 meters or even above.
- Since the region is warm and wet throughout the year, it has a luxuriant vegetation of all kinds – trees, shrubs, and creepers giving it a multilayered structure.
- There is no definite time for trees to shed their leaves. As such, these forests appear green all the year round.

- Some of the commercially important trees of this forest are ebony, mahogany, rosewood, rubber and cinchona.
- The common animals found in these forests are elephants, monkey, lemur and deer.

13. What are the features of tropical deciduous forest?

- These are the most wide spread forests in India.
- They are also called the monsoon forests and spread over the region receiving rainfall between 200 cm and 70 cm. Trees of this forest-type shed their leaves for about six to eight weeks in dry summer.
- On the basis of the availability of water, these forests are further divided into moist and dry deciduous.
- The moist deciduous forests are found in areas receiving rainfall between 200 and 100 cm. These forests exist, therefore, mostly in the eastern part of the country – north eastern states, along the foothills of the Himalayas, Jharkhand, West Orissa and Chhattisgarh, and on the eastern slopes of the Western Ghats. Teak is the most dominant species of this forest. *Bamboos, Sal, Shisham, sandalwood, khair, kusum, arjun* and mulberry are other commercially important species.
- The dry deciduous forests are found in areas having rainfall between 100 cm and 70 cm. These forests are found in the rainier parts of the peninsular plateau and the plains of Bihar and Uttar Pradesh. There are open stretches in which Teak, Sal, *Peepal, Neem* grow. A large part of this region has been cleared for cultivation and some parts are used for grazing.
- In these forests, the common animals found are lion, tiger, pig, deer and elephant. A huge variety of birds, lizards, snakes, and tortoises are also found here.

14. What are the features of thorn forests and scrubs?

- In regions with less than 70 cm of rainfall, the natural vegetation consists of thorny trees and bushes. This type of vegetation is found in the north-western part of the country including semi-arid areas of Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Uttar Pradesh and Haryana.
- Acacias, palms, euphorbia and cacti are the main plant species. Trees are scattered and have long roots penetrating deep into the soil in order to get moisture.
- The stems are succulent to conserve water. Leaves are mostly thick and small to minimize evaporation.
- These forests give way to thorn forests and scrubs in arid areas.
- The common animals are rats, mice, rabbits, fox, wolf, tiger, lion, wild ass, horses and camels.

15. Describe the succession of natural vegetation belt in mountainous region. (Describe the vegetation of high altitudes)

- The **wet temperate types of forests** are found between a height of 1000 and 2000 meters. Evergreen broad-leaf trees such as oaks and chestnuts predominate.
- Between 1500 and 3000 meters, **temperate forests** containing coniferous trees like pine, deodar, silver fir, spruce and cedar, are found.
- At higher elevations, **temperate grasslands** are common. At high altitudes, generally more than 3,600 meters above sea-level, temperate forests and grasslands give way to the **Alpine vegetation**. Silver fir, junipers, pines and birches are the common trees of these forests.
- Ultimately through shrubs and scrubs, they merge into the Alpine grasslands.
- At higher altitudes, mosses and lichens form part of **tundra vegetation**.

16. Where are mangrove forests found?

Mangrove tidal forests are found in the areas of coasts influenced by tides. The deltas of the Ganga, the Mahanadi, the Krishna, the Godavari and the Kaveri are covered by such vegetation. In the Ganga- Brahmaputra delta, sundari trees are found, which provide durable hard timber. Palm, coconut, keora, agar, also grow in some parts of the delta. Contd..

17. Which are the animals found in mangrove forests?

Royal Bengal Tiger is the famous animal in these forests. Turtles, crocodiles, gharials and snakes are also found in these forests.

18. Write a short note on wild life in India.

- India has more than 89,000 of animal species. The country has more than 1200 species of birds. They constitute 13% of the world's total.
- There are 2500 species of fish, which account for nearly 12% of the world's stock. It also shares between 5 and 8 per cent of the world's amphibians, reptiles and mammals.

- The elephants are the most majestic animals among the mammals. They are found in the hot wet forests of Assam, Karnataka and Kerala.
- One-horned rhinoceroses are the other animals, which live in swampy and marshy lands of Assam and West Bengal. Arid areas of the Rann of Kachchh and the Thar Desert are the habitat for wild ass and camels respectively.
- Indian bison, *nilgai* (blue bull), *chousingha* (four horned antelope), gazel and different species of deer are some other animals found in India. It also has several species of monkeys.
- India is the only country in the world that has both tigers and lions. The natural habitat of the Indian lion is the Gir forest in Gujarat.
- Tigers are found in the forests of Madhya Pradesh the Sundarbans of West Bengal and the Himalayan region.
- Leopards too are members of the cat family. They are important among animals of prey.
- The Himalayas have a hardy range of animals, which survive in extreme cold. Ladhak's freezing high altitudes are a home to yak, the shaggy horned wild ox weighing around one tonne, the Tibetan antelope, the bharal (blue sheep), wild sheep, and the *kiang* (Tibetan wild ass). Further more, the ibex, bear, snow-leopard and very rare red panda are found in certain pockets.
- In the rivers, lakes and coastal areas turtles, crocodiles and gharials are found. The latter is the only representative of a variety of crocodile, found in the world today.
- Bird life in India is colourful. Peacocks, peasanets, ducks, parakeets, cranes and pigeons are some of the birds inhabiting the forests and wetlands of the country.

19. What are the measures taken to protect the flora and fauna by government of India?

- The Wild life Protection Act was passed in 1972.
- Fourteen biosphere reserves have been set up in the country to protect flora and fauna.
- Four out of these, the Sunderbans in the West Bengal, Nanda Devi in Uttaranchal, the Gulf of Mannar in Tamil Nadu and the Nilgiris (Kerala, Karnataka and Tami Nadu) have been included in the world network of Biosphere reserves.
- Financial and technical assistance is provided to many Botanical Gardens by the government since 1992.
- Project Tiger, Project Rhino, Project Great Indian Bustard and many other eco developmental projects have been introduced.
- 89 National Parks, 490 Wildlife sanctuaries and many Zoological gardens are set up to take care of Natural heritage.

20. Quite a few species of plants and animals are endangered in India. Why?

- The main causes for this major threat to nature are hunting by greedy hunters for commercial purposes.
- Pollution due to chemical and industrial waste, acid deposits, introduction of alien species.
- Reckless cutting of the forests to bring land under cultivation.
- Inhabitation is also responsible for the imbalance.

21. Name two animals having habitat in tropical and montane type of vegetation.
Deers, sheeps and goats are found in these regions.

22. What are endangered species? Give two examples.

Animals that are at the verge of extinction are called endangered species. Rhinoceros, Indian bustard and tigers are some examples of endangered species of animals.

23. Define Biosphere Reserves. Name any two biosphere reserves of the country.

Biospheres are multipurpose protected areas, where every plant and animal species are protected in its natural habitats. Eg. Nilgiri and Nanda Devi.

24. What is the need for conserving wildlife?

Continuous and excessive exploitation of the plant and animal resources of the country has damaged the ecosystem badly. Many plant and animal species have become extinct. Some plant and animal species are on the verge of extinction.

Natural ecosystem must be maintained to ensure our own survival

Chapter 6 POPULATION

Q:1) Why is population very important in a country? (OR) Why is population a pivotal element in social studies?

- i) The people are important to develop the economy and society. The people make and use the resources and are themselves resources with varying quality.
- ii) It is the point of reference from which all other elements observed and from which they derive significance and meaning. 'Resources', 'calamities' and 'disasters' are all meaningful only in relation to human beings.
- iii) Their numbers, distributions, growth and characteristics or qualities provide the basic background for understanding and appreciating all aspects of the environment.
- iv) Human beings are producers and consumers of earth's resources. Therefore it is very important to know how many people are there in a country, where do they live, how and why are their numbers increasing and what are their characteristics.

Q:2) What are the major questions that we are concerned with the study of population?

1. **Population size and distribution** : How many people are there and where are they located?
2. **Population growth and purposes of population change**: How has the population grown and changed through time?
3. **Characteristics or qualities of the population**: What are their age, sex-composition, literacy levels, occupational structure and health conditions?

Q:3) What are the 3 components of the study of population?

1. Population size and distribution.
2. Population growth and purposes of population change.
3. Characteristics or qualities of the population

Q:4) Describe the size and distribution of population on India.

1. India's population as on March 2001 stood at 1.028 billion, which account for 16.7% of the world's population.
2. These 1.02 billion people are unevenly distributed over our country's vast area of 3.28 million sq. km, which accounts for 3.28% of the world's area.
3. The 2001 census data reveals that **Uttar Pradesh** with a population of 166 million people is the most populous state of India. UP accounts for 16% of the country's population. On the other hand, Sikkim has a population of just 0.5 million and Lakshadweep has only 60 thousand people.
4. The population density of India in the year 2001 was 324 persons per sq. km. Densities vary from 904 persons per sq. km. in West Bengal to only 13 persons per sq.km in Arunachal Pradesh.

Q:5) What is meant by density of population?

The number of persons per sq. km is called density of population.

Q:6) What are the primary reasons for sparse population in some states of India?

Rugged terrain and unfavorable climatic conditions are primarily responsible for sparse population in some areas. eg. Jammu & Kashmir, Arunachal Pradesh

Q:7) Why do some states in India have moderate population density?

Hilly, dissected and rocky nature of the terrain, moderate to low rainfall, shallow and less fertile soils have influenced population densities in areas. Eg. Orissa, MP

Q:8) State any two reasons for high to very high population in northern plains and Kerala?

The northern plains and Kerala in the south have high to very high population densities because of the flat plains with fertile soils and abundant rainfall.

Q:9) Name the 3 factors affecting population of an area . (What are the processes of population growth / change?)

- **Birth rate** is the number of live births per thousand persons in a year. It is a major component of growth because in India, birth rates have always been larger than death rates.
- **Death rate** is the number of deaths per thousand persons in a year. The main cause of the rate of growth of the population has been the rapid decline in death rates.
- **Migration** is the movement of people across regions and territories. Migration can be internal or international.

Q:10)What is meant by population growth and how do you calculate it?

- Growth of population refers to the change in the number of inhabitants of a country / territory during a specific period of time, say during the last 10 years. Such a change can be expressed in two ways: in terms of absolute numbers and in terms of % change per year.
- It is obtained by simply subtracting the earlier population from the later population. It is referred to as absolute increase.

Q:11)What is meant by annual growth rate of population?

It is the percentage increase in the growth of population per year. The rate or pace of population increase is studied in per cent per year. Rate of increase of 2 % per annum means that in a given year, there was an increase of two persons for every 100 persons in the base population. This is referred as annual growth rate. India's population has been steadily increasing from 361 million in 1951 to 1028 million in 2001.

Q:12)Why is even low annual growth rate of population considered not good for India?

It is essential to realize that India has a very large population. When a low annual rate is applied to a large population, it becomes a very high absolute number. When more than a billion people increase even at a lower rate, the total numbers being added becomes very large.

Q:13) Why is the rate of population growth in India declining since 1981?

- 1) Since 1981 the rate of growth of population started declining gradually. During this period, birth rates decline rapidly.
- 2) The declining trend of the growth rate is indeed a positive indicator of the efforts of birth control.

Q:14) How does migration affect the population?

1. Migration is an important determinant of population change. It changes not only the population size but also the population composition of urban and rural populations in terms of age and sex composition.
2. In India the rural – urban migration has resulted in a steady increase in the % of population in cities and towns.
3. The urban population has increased from 17.9% of the total population in 1951 to 27.78% in 2001.
4. There has been a significant increase in the number of ‘million plus cities’ from 23 to 35 in just one decade ie 1991 to 2001.

Q:15) What is meant by age composition? Why is it important to know the age composition?

1. The age composition of a population refers to the number of people in different age groups in a country.
2. It is one of the most basic characteristics of a population. To an important degree, a person’s age influences what he needs, buys, does and his capacity to perform.
3. Consequently, the number and % of a population found within **the children, working age, and aged group** are notable determinants of the population’s social and economic structure.

Q:16) Describe the three age compositions of the Population in India.

- **Children** (below 15 yrs) : They are economically unproductive and need to be provided with food, clothing, education and medical care. They are called depended population.
- **Working Age** (15-59 yrs) : They are economically productive and biologically reproductive. They comprise the working population.
- **Aged** (59 yrs n above) : They can be economically productive though they may have retired. They may be working voluntarily but they are not available for employment through recruitment. They too are called depended population.

Q:17) Who are the dependant groups in age composition?

The % of children below the age of 15 and the aged above 59 years affect the dependency ratio because these groups are not producers. These are the dependant groups.

Q:18) What is sex ratio? Why is it important? (What is meant by favourable sex ratio?)

- Sex ratio is defined as the number of females per 1000 males in the population.
- This information is an important social indicator to measure the extent of equality between males and females in a society at a given time.
- The sex ratio in the country has always remained unfavorable to females.

Q:19) Why do we need high literacy rate in a country? Who is a literate person?

1. Literacy is a very important quality of a population. Only an informed and educated citizen can make intelligent choices and undertake research and development projects. Low levels of literacy rate are a serious obstacle for economic improvement.
2. According to census of 2001, a person aged 7 yrs and above can read and write with understanding in any language, is treated as literate.

Q: 20) Name the five states in India where half of India's population lives.

Uttar Pradesh, Maharashtra, Bihar, West Bengal, and Andhra Pradesh

Q: 21) Name states in India having the highest population and highest density of population.

Uttar Pradesh has the highest population and West Bengal has the highest density of population.

Q:22) What is meant by occupational structure?

The distribution of population according to different types of occupation is referred to as occupational structure.

Q:23) Describe the 3 classification of occupational structure.

They are generally classified into primary, secondary and tertiary activities.

- Primary activities include agriculture, animal husbandry, forestry, fishing, mining, quarrying etc.
- Secondary activities include manufacturing industry, building and construction work etc.
- Tertiary activities include transport, communications, commerce, administration and other services.

Q:24) How does occupational structure indicate economic development of a country?

(What is the relation between occupational structure and development?)

- Developed nations have a high proportion of people in secondary and tertiary activities because it is more productive and profitable.
- Developing countries tend to have a higher proportion of their workforce engaged in primary activities because these are not as productive and profitable as the other sectors.
- In India, about 64% of the population is engaged only in agriculture. The proportion of population dependent on secondary and tertiary sectors is about 13 to 20% respectively.

Q:25) What are the improvements made in the health status of people of India?

- Death rates have declined from 25 per 1000 population in 1951 to 8.1 per 1000 in 2001 and life expectancy at birth has increased from 36.7 years in 1951 to 64.6 years in 2001.
- The substantial improvement is the result of many factors including improvement in public health, prevention of infectious diseases and application of modern medical practices in diagnosis and treatment of ailments.

Q:26) What are the factors affecting health status of people of India?

- The per capita calorie consumption is much below the recommended levels in India and malnutrition afflicts a large % of population.
- Safe drinking water and basic sanitation amenities are available to only 1/3rd of the rural population.

Q:27) Why is too much attention and care required for adolescent population?

- Adolescent population constitutes 1/5th of the total population of India. Adolescents are generally grouped in the age group of 10-19 yrs. They are the most important resources of the future.
- Nutrition requirement of adolescents are higher than those of a normal child or adult.
- Poor nutrition can lead to deficiency and stunted growth but in India, the diet available to adolescents is inadequate in all nutrients. A large number of adolescent girls suffer from anemia. Their problems have so far not received adequate attention in the process of development.

Q:28) What are the significant features of NPP 2000?

The NPP 2000 provides a policy framework for imparting-free and compulsory education for school up to 14 yrs of age, reducing infant mortality rate to below 30 per 1000 live births, achieving universal immunization of children against all vaccine preventable diseases, promoting delayed marriage for girls, and making family welfare a people centered programme.

Q:29) What are the measures taken by the NPP 2000 to protect adolescent population?

- Besides nutritional requirements, the policy puts greater emphasis on other important needs of adolescence including protection from unwanted pregnancies and sexually transmitted diseases (STD).
- It called for programmes that aim towards encouraging delayed marriage and child bearing, education of adolescence about the risks of unprotected sex, making contraceptive services accessible and affordable, providing food supplements, nutritional services, strengthening legal measures to prevent child marriage.

Q:30) What are the advantages of having a healthy population?

- A healthy population only can provide welfare and well-being of a society.
- A healthy population only bear healthy mind to have responsible citizens and to contribute economic development of the country.

Q:31) What are the push and pull factors of the rural and urban areas that affect the population of an area?

- i) Push factors are the adverse conditions of poverty and unemployment in the rural areas.
- ii) Pull factors are the increased employment opportunities and better living conditions in cities.

Q:32) Which are the important components of population composition that affect the process of development?

Age composition, sex ratio, literacy rate, occupational structure, health etc
(explain)

Q: 33) What is meant by over population?

A situation when the resources in an area are too less for the size of population.

Q:34) Define the following terms:

i. Population

The total number of people living in a country at a given point of time.

ii. Census

Process of collection ,compilation and publication of information relating to different aspects of people living in a country at a specific point of time.

iii. Birth rate

The number of live births per thousand persons in a year.

iv. Death rate

Number of death per thousand in a year

v. Million plus cities / Mega Cities

Cities with a population of one million and above. There are 35 million plus cities in India .eg. Delhi,Chennai,Mumbai,Bangalore.

vi. Urban Agglomeration (Not required)

Around the core of each town or city, cluster of urban settlements have developed which are linked to the economy of the country .They are known as urban agglomeration. They are extension of cities but are not covered by defined municipal limits.

vii. Sex Ratio

Number of females per thousand males in the population.

viii. Age composition

Population can be divided according to categories of people of various age groups. Age composition of people is usually expressed in terms of three broad age groups: children below the working age,(below 15 years),persons in working age ,(15-59 years) and old persons above working age(above 59 years).Anyone who is engaged in productive work and has the ability to do so is a part of the working population. The dependent population is in the age group below 15 and above 59 years.