

HPAS MAIN EXAM 2017

GS PAPER I GEOGRAPHY (CLIMATE)

SHORT QUESTION ANSWER

Q.1. Define: climate and weather.

Ans. Weather: Weather refers to the state of the atmosphere at any point of time and space. It changes very frequently.

Climate: Climate refers to the sum total of weather conditions and variations over a large area for a long period of time.

Q.2. What are the elements of climate and weather?

Ans. The elements of climate and weather are temperature, atmospheric pressure, wind, humidity, and precipitation.

Q.3. How is the climate of India described as?

Ans. The climate of India is described as Monsoon type of climate.

Q.4. What is Continentality?

Ans. As the distance from the sea increases, people experience extreme weather conditions, i.e., very hot during summers and very cold during winters. This condition is known as Continentality.

Q.5. What is Coriolis force?

Ans. An apparent force caused by the earth's rotation 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.

Eg. South-east winds become south-west winds.

Q.6. Why the climate of India is described both as tropical as well as sub-tropical?

Ans. The tropic of cancer passes through the middle of the country. Almost half of the country, lying south of the Tropic of Cancer belongs to the tropical area and the remaining area, north of tropics lies in sub-tropics. Therefore, climate of India has the characteristics of tropical as well as sub-tropical climate.

Q.7. What do you understand by the terms burst of monsoons and break in monsoons?

Ans. Burst of monsoons: the phenomena when the normal rainfall increases suddenly and continues constantly for several days are known as burst of the monsoons.

Break in monsoons: Monsoons are interspersed with rainless intervals which are related to the movement of the monsoon trough. These wet and dry spells in the monsoons are known as break in monsoons.

Q.8. How western disturbances are important for the agriculture of India?

Ans. The western disturbances during the winters are of immense importance for the cultivation of rabi crop which is extensively done over the North-western part of the country.

Q.9. Why there is a change of season from winter to summer over the Indian landmass?

Ans. Because of the tilt ness and revolution of the earth, there occurs a change of season from winter to summer over the Indian landmass.

Q.10. What do you understand by the term 'loo'?

Ans. Loo is the hot and dry speedy wind moving from west to east in the north plains of India during summer afternoons. It causes the temperature to increase to 45 to 50°C, and cause tremendous loss to life due to extreme heat.

Q.11. How the withdrawal of monsoons happens in India?

Ans. During October-November, due to decrease in temperature conditions, the low pressure trough over the northern plains is replaced by high pressure system. Due to this, the monsoon winds start withdrawing from India.

Q.12. Why does western part of Western Ghats receives more rainfall than the eastern side?

Ans. Western Ghats act as a relief to the Arabian Sea branch of the monsoon winds. The western parts of the Western Ghats lie to the windward side for the monsoon winds and therefore, receive more rainfall than the eastern side which is the leeward side.

Q.13. Which region in India will experience highest diurnal range of temperature?

Ans. Rajasthan experience highest diurnal range of temperature.

[Diurnal range of temperature = max. temperature of the day – min. temperature of the day]

[Monthly range of temperature = max. temperature of the month – min. temp. of the month]

[Annual range of temperature = max. temp. of the year – min. temp. of the year]

Q.14. Name the winds which cause rainfall along the Malabar Coast and Coromandal Coast.

Ans. Malabar Coast: South-west monsoon winds

Coromandal Coast: North-east winds

Q.15. Define the following winds:

Ans. *Kalbaisakh*: kalbaisakh are locally formed thunderstorms during the summer evenings in Assam and West Bengal and cause heavy rainfall with violent winds in the adjoining areas.

Mango showers: The pre-monsoon showers occurring on the coastal regions of Kerala and Karnataka and beneficial to the ripening of mango fruit are called Mango showers.

Q.16. Why Tiruvananthapuram has equable climate?

Ans. Because Tiruvananthapuram is located nearer to the sea therefore, it experience equable type of climate throughout the year i.e., neither too hot nor too cold.

Q.17. Why does western Rajasthan obtain scanty rainfall?

Ans. Western Rajasthan obtain scanty rainfall because the Arabian sea branch of the monsoon winds move parallel to the Aravalli range without shedding any orographic rainfall. Moreover, the high temperature in Rajasthan does not allow the winds to condense to form clouds.

Q.18. Why is it that the heaviest rainfall of the world occurs at Shillong plateau (in Mawsynram)?

Ans. The heaviest rainfall of the world occurs in Mawsynram because it is situated in funnel shaped Garo, Khasi and Jaintia hills. A part of the bay of Bengal branch of the monsoon winds gets trapped into these hills and shed all its moisture here.

Q.19. How can you say that Himalayas act as an important climatic divide for India?

Ans. The predominant land feature which divides the climates of the regions on its both sides is known as climatic divide. Himalayas act as an important climatic divide for India as:

- They do not allow the cold winds from Central Asia to enter India.
- Also, they do not allow the monsoon winds to cross the Indian landmass.
- They help in shedding orographic rainfall in the northern parts of the country.

Q.20. Why is Kolkata rainier in July than in June unlike Shillong which is rainier in June than in July?

Ans. The Bay of Bengal branch of the monsoon winds move from east to west direction. Monsoon arrive India in the early month of June. Shillong being located in East is rainier in June than that of Kolkata which is to the west of Shillong.

Q.21. Why does Delhi receive more rain than Jodhpur?

Ans. Delhi gets the collective monsoon from the Arabian Sea Branch as well as Bay of Bengal branch where as Jodhpur get very scanty rainfall only from the Arabian Sea branch. Therefore, Delhi is rainier than Jodhpur.

Q.22. How is the climate of India described as? Explain it.

- Ans. A. The climate of India is described as the 'monsoon' type.
B. monsoon is the seasonal reversal in the wind system during the year.
C. This type of climate if found mainly in South and Southeast Asia.
D. The word monsoon is derived from the Arabic word 'mausim' which literally means season.

Q.23. Why does the Coromandal Coast (Tamil Nadu) receives winter rainfall?

OR

Where do we experience winter monsoons and why?

Ans. Coromandal coast (Tamil Nadu) receives winter rainfall from the North-east monsoon winds. These winds blow from land to sea and therefore, are generally dry in nature. They absorb moisture passing over Bay of Bengal and cause rainfall on the Tamil Nadu coast during winter.

Q.24. What do you understand by ITCZ?

Ans. * Inter-tropical Convergence Zone or ITCZ, is a broad trough of low pressure in equatorial latitudes.

- This is the area where northeast and southeast trade winds converge.
- This convergence zone lies more or less parallel to the equator but moves northwards or southwards with the movement of the sun.

Q.25. Explain the features of "October Heat".

Ans. Monsoon retreat is marked by clear skies and rise in temperature. Day temperatures are high, nights are cool and pleasant. Owing to the conditions of high temperature and humidity, weather becomes rather oppressive during the day. This is commonly known as 'October Heat'.

Q.26. What is Southern Oscillation?

Ans.* Changes in the pressure conditions over the Southern ocean also effect monsoons. Normally, when the tropical eastern South Pacific ocean experience high pressure, the tropical eastern South Indian Ocean experience low pressure.

- But, in certain years, the usually prevailing pressure conditions are reversed; it results in low pressure on the eastern pacific ocean, in comparison to the eastern Indian Ocean.
- This periodic change in pressure conditions are known as Southern Oscillation or SO.

Q.27. What is orographic rainfall? Where in India do we experience this type of rainfall?

Ans. OROGRAPHIC RAINFALL - Rainfall that occurs when moisture laden air is forced to rise over a mountain range. As the air rises, it cools. The amount of moisture that air can hold decreases with decreasing temperature. So the water vapour in the rising airstream condenses, and rain falls on the windward side of the mountain. The air descending on the leeward side contains less moisture, resulting in a **rainshadow** where there is little or no rain. On the western coastal plains (western side of the western ghats) we experience orographic rainfall.

Q.28. Explain the variation in terms of climate from place to place and season to season that is observed in India.

Ans. I. TEMPERATURE

(a) According to Seasons

- i> In summer, temperature occasionally rises to 50⁰C or more in some parts of Rajasthan. On the other hand, it is around 20⁰C in Pahalgam in Jammu and Kashmir.
- ii> On a winter night, temperature at Drass in Jammu and Kashmir is as low as -45⁰C at night.
- iii> On the other hand, Thiruvanthapuram experience temperature of 20⁰C.

(b) According to Day and Night

Certain places have wide difference between day and night temperatures.

- i> In Rajasthan, the day temperature rises to 50⁰C and comes down to near freezing point the same night.
- ii> On the other hand, there is hardly any difference in day and night temperatures in the Andaman and Nicobar Islands.

II. PRECIPITATION

(a) Forms and types of Precipitation

- i> Precipitation is mainly in the form of snowfall in the Himalayas.
- ii> It is only in the form of water droplets over the rest of the country.

(b) Annual Variations in Rainfall

- i> Annual precipitation varies from over 400 cm in Meghalaya to less than 10cm in Ladakh and Western Rajasthan.
- ii> Most parts of the country receive rainfalls from June to September from advancing monsoons.
- iii> Tamil Nadu coast get most of its rains during November and December from retreating monsoons.

Q.29. Explain the six major climatic controls with reference to India.

Ans. A. LATITUDE

Due to curvature of earth, the amount of solar energy received on the earth varies from latitude to latitude. This results in decrease of temperature from equator to poles.

Reference to India – Tropic of Cancer passing through India divides the country into tropical and sub-tropical zones. Hence, temperature remains high throughout the year in South India (tropical zone) while they are high in summer and low in winter in North India (sub-tropical zone).

B. ALTITUDE

With increase in altitudes, the atmosphere goes on becoming less dense and temperature goes on decreasing.

Reference to India- though, Udagamandalam (Ooty) lies in low latitude area (tropical zone) but the climatic conditions are different from the adjoining regions because it is located at high altitude.

C. PRESSURE AND WINDS

The pressure and wind system exert influence on the climate of any place because they control the temperature and rainfall pattern.

Reference to India- Upper air circulation winds, western disturbances, tropical cyclones, monsoons etc. govern the climate and associated weather conditions in India.

D. DISTANCE FROM THE SEA

Sea exerts a moderating effect on climate. Distance from the sea or Continentality is a major factor in determining the climate of a place.

Reference to India- temperature remains uniform at Mumbai throughout the year where as at Delhi winter and summer temperature vary from 5⁰C to 45⁰C.

E. OCEAN CURRENTS

Ocean currents along with on-shore winds influence climate of coastal regions.

Reference to India- warm currents along the coastal region of India influence the climate of the adjoining areas.

F. PHYSIOGRAPHY

Relief (physiography) plays a major role in determining the climate of a place.

Reference to India- Himalayas donot allow the cold winds from Central Asia to enter India, neither allows monsoon winds to cross India. Also, relief also helps in orographic rainfall in many parts of the country.

Q.30. What are Jet streams? How do they affect the climate of India?

Ans. Jet streams are a narrow belt of high altitude (above 12000m) westerly winds in the troposphere located approximately over 27⁰-30⁰ N latitude. Their speed varies from about 110km/h in summer to about 184 km/h in winter.

Westerly Jet stream - Westerly jet stream is an upper air circulation moving from west to east direction. In India, it is effective during winter as it remains north of Himalayan range. It causes the western disturbances to enter India and cause rainfall/snowfall in north and north-western parts of India.

Easterly Jet stream- Easterly jet stream is an upper air circulation moving from east to west direction. In India, it is effective in summer as it remains south of Himalayan range. It causes tropical cyclones to enter India.

Q.31. Explain the route followed by the monsoon winds over the Indian landmass.

Ans. **ONSET OF THE MONSOON**

Monsoon winds are pulsating in nature. The monsoon arrives at the southern tip of the Indian peninsula generally by the first week of June. From here, it divides itself into two – the Arabian sea branch and the Bay of Bengal Branch.

- The Arabian Sea Branch reaches Mumbai about ten days later on 10 June.
- The Bay of Bengal branch also advances rapidly and arrives in Assam in the first week of June. On reaching the Eastern Himalayas, it is deflected towards the west over the Ganga plains.
- By mid June, The Arabian Sea branch of the monsoon arrives over the Saurashtra-Kutch region and the Central part of the country.
- The Arabian Sea branch and the Bay of Bengal branches of the monsoon merge over the north-western part of the Ganga plains.

RETREAT OF THE MONSOON

- Withdrawal or retreat of the monsoon is a more gradual process than the onset.
- It begins in the western parts of northwestern states of India by early September.
- Withdrawal from the southern half of the country is fairly rapid.
- By early December, withdrawal of the monsoon has taken place from the rest of the country.

Q.32. Write down the characteristic features of the:

Ans.1. **HOT WEATHER SEASON**

- Due to the northward movement of the sun, the global heat belt shifts northward. It is the hot weather season in India from March to May.
- In Peninsular India, temperature remains lower due to the moderating influence of the seas on three sides whereas it goes as high as 48°C in the northwestern parts of the country.
- Summer months experience rising temperature and falling air pressure in the northern part of the country. An elongated low pressure area develops in the region.
- Strong, hot, dry winds known as loo blow during the day over the northern India. Other winds like Kalbaisakh and mango showers are also common in different parts of the country.

2. COLD WEATHER SEASON

- The cold weather season begins from mid-November in northern India and stays till February.
- Temperature decreases from North to South. December and January are the coldest months. Average temperature of Chennai is 24° to 25°C whereas it ranges in 10° - 15°C .
- Days are warm and nights are cold. Frost is common in the north.
- Northeast winds from land to sea prevail over the country from land to sea.
- North east winds and western disturbances bring rainfall in different parts of the country during winters.
- The peninsular India does not have a well defined cold season. There is hardly any noticeable seasonal change in temperature pattern due to the influence of the sea.

Q.33. How the monsoons are distributed all over India?

Ans. HEAVY RAINFALL REGIONS

Annual rainfall of over 400 cm is received over parts of western coast and north-eastern India.

SCANTY RAINFALL REGIONS

- a. It is less than 60cm in western Rajasthan and adjoining parts of Gujarat, Haryana and Punjab.
- b. Rainfall is also low in the interior of the Deccan plateau, east of the Sahayadris.
- c. A third area of low precipitation is around Leh in Jammu and Kashmir

MODERATE RAINFALL REGIONS

- a. The rest of the country receives moderate rainfall.
- b. Snowfall is restricted to the Himalayan region.

Q.34. How can you say that monsoons are uncertain in nature?

Ans. Vagaries of monsoon are the result of variable nature of annual rainfall. Annual rainfall is highly variable from year to year.

- Variability is high in the regions of low rainfall. These regions are parts of Rajasthan, Gujarat, and the leeward side of the Western Ghats.
- Areas of high rainfall are almost affected by floods.
- Areas of low rainfall are drought prone.

Q.35. “The nature of monsoons is highly variable, still they are considered as a unifying bond.” How?

- Ans. Seasonal alteration of the wind systems and the associated weather conditions provide a rhythmic cycle of seasons.
- 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 people, including their festivities, revolve around this phenomenon.
- Year after year, people of India eagerly await the arrival of the monsoon.
- The monsoon affects the people of India uniformly. Therefore, it is known as a unifying bond.