

Chapter 7. Weather, Climate And Adaptation

Very Short Q&A:

Q1: Daily weather report predicts the _____ for the day.

Ans: Weather

Q2: Name the two elements of weather.

Ans: Temperature, humidity etc

Q3: What is humidity?

Ans: Humidity is the measure of the moisture in air.

Q4: Who prepares daily weather report?

Ans: Meteorological department of the government.

Q5: Name an instrument used to measure rainfall.

Ans: Rain gauge.

Q6: Rain gauge is a _____ with a funnel on top to collect rain water.

Ans: Measuring cylinder.

Q7: Do all the seven days have same maximum and minimum temperatures, humidity and rainfall?

Ans: No

Q8: The day to day condition of the atmosphere at a place is called

- a. Climate
- b. Weather
- c. Temperature
- d. None of these

Ans: Weather

Q9: Which of the following is the elements of the weather

- a. Temperature
- b. Humidity
- c. Rainfall
- d. All of these

Ans: All of these

Q10: Weather of a place _____ day after day and week after week.

Ans: Changes

Q11: What is the use of maximum and minimum thermometer?

Ans: To measure weather temperature.

Q12: All changes in the weather is caused by sun .True /False

Ans: True

Q13: Days are shorter in winter or in summer?

Ans: Winter

Q14: What kind of places experiences hot and dry climate?

Ans: Places that receive very little rainfall like desert regions.

Q15: Name the place in India having wet climate.

Ans: North eastern part of India has wet climate.

Q16: Name some countries having tropical rain forest.

Ans: India, Malaysia, Indonesia, Brazil etc.

Q17: Name some animals of Polar Regions

Ans: Penguin, polar bear etc

Q18: Polar bears have two thick layers of _____ to protect them from extreme cold.

Ans: Fur

Q19: Which of the following is the adaptation feature of polar bear

- a. A layer of fat under their skin
- b. Small and wide paws
- c. Webbed feet
- d. Thin skin

Ans: A layer of fat under their skin

Q20: Which of the following is the adaptation feature of polar bear

- a. Thick skin and lot of fat
- b. Small and wide paws
- c. Webbed feet
- d. Thin skin

Ans: Thick skin and lot of fat

Q21: Polar bear and penguins are good _____.

Ans: Swimmers

Q22: Name one migratory bird.

Ans: Siberian Crane

Q23: Name the places where tropical rain forests are found?

Ans: Western Ghats, Assam in India, Southeast Asia, Central America and Central Africa.

Q24: Name some animals living in rainforest.

Ans: Monkeys, apes, gorillas, lions, tigers, elephant, leopards, lizards, insects, snakes etc.

Q25: Monkeys have long tail for _____ branches.

Ans: Grasping

Q26: Toucan birds have long and large _____.

Ans: Beak

Q27: State some features of tropical animals.

Ans: Sensitive hearing, sharp eye sights, thick skin etc.

Q28: Big _____ have thick skin and sensitive hearing.

Ans: Cats

Q29: Name the organ in elephant used for picking up food.

Ans: Trunk

Q30: Name the instrument used to measure humidity.

Ans: Hygrometer

Q31: A place receives very little rainfall and temperature of that place is high throughout the year, then what type of climate will that place have?

Ans: Hot and dry climate.

Q32: Name the two region of earth with extreme climatic condition.

Ans: Polar and tropical region

Q33: The special feature of an animal to live in its surrounding is called _____.

Ans: Adaptation.

Q34: Kerala has _____ climate.

Ans: Hot and wet

Q35: Rajasthan has _____ climate.

Ans: Hot and dry

Short Q&A:

Q1: Explain weather of a place.

Ans: Weather describes the condition of the atmosphere. It might be sunny, hot, windy or cloudy, raining or snowing. The weather depends on the temperature, precipitation,

humidity and atmospheric pressure of the part of atmosphere (air) closest to the surface of the earth. The weather is constantly changing as temperature and humidity change in the atmosphere.

Q2: What do you mean by climate of a place?

Ans: Climate is the average weather conditions - temperature, pressure, precipitation and humidity - expected for a certain place. Climate is based on the average weather experienced over 30 years or more.

Q3: Differentiate between weather and climate.

Ans:

	Climate	Weather
1. Definition: 2. Components: 3. Forecast:	1. Describes the average conditions expected at a specific place at a given time. 2. Climate may include precipitation, temperature, humidity, sunshine, and wind velocity, phenomena such as fog, frost, and hail storms over a long period of time. 3. By aggregates of weather statistics over periods of 30 years	1. Describes the atmospheric conditions at a specific place at a specific point in time. 2. Weather includes sunshine, rain, cloud cover, winds, hail, snow, sleet, freezing rain, flooding, blizzards, ice storms, thunderstorms, steady rains from a cold front or warm front, excessive heat, heat waves and more 3. By collecting meteorological data, like air temperature, pressure, humidity, solar radiation, wind speeds and direction etc.

Q4: Name the elements determining weather of a place.

Ans: Temperature, air pressure, wind speed, humidity and rainfall are the essential elements determining weather of a place.

Q5: Differentiate between meteorology and meteorologists.

Ans: Meteorology is the science of monitoring and studying the atmosphere and predicting its weather and climate whereas Meteorologists are the People who study the weather and

climate.

Q6: Explain how latitude affects Indian climate.

Ans: Due to the curvature of the Earth, the amount of solar energy received is different according to the latitudes and thus it affects India's climatic condition.

Q7: Explain how altitude affects Indian climate.

Ans: As we go higher, temperature generally decreases (From equator to poles) as the atmosphere becomes less dense, and thus it affects India's climatic condition.

Q8: Explain how climate of a place is affected by distance from the sea.

Ans: The sea has a moderating effect on the climate. As distance from sea increases, this effect decreases and places experience extreme weather conditions and thus it affects India's climatic condition.

Q9: Explain how climate of a place is affected by ocean current.

Ans: Ocean currents affect the climate of the coastal areas with the onshore winds.

Q10: How wind affect climate of a place?

Ans: If the temperature of the wind is cold/hot coming from a particular place the place it should go to could have the opposite temperature of the place that the wind is coming from.

Q11: How does an elephant living in tropical rain forest adapt itself?

Ans: It has adapted to the conditions of rainforests in many remarkable ways. It uses its trunk as a nose because of which it has a strong sense of smell. The trunk is also used by it for picking up food. Moreover, its tusks are modified teeth. These can tear the bark of trees that elephant loves to eat. So, the elephant is able to handle the competition for food rather well. Large ears of the elephant help it to hear even very soft sounds. They also help the elephant to keep cool in the hot and humid climate of the rainforest.

Q12: Write a short note on the characteristics of Beard ape?

Ans: The lion-tailed macaque (also called Beard ape) lives in the rainforests of Western Ghats. Its most outstanding feature is the silver-white mane, which surrounds the head from the cheeks down to its chin. It is a good climber and spends a major part of its life on the tree. It feeds mainly on fruits. It also eats seeds, young leaves, stems, flowers and

buds. This beard ape also searches for insects under the bark of the trees. Since it is able to get sufficient food on the trees, it rarely comes down on the ground.

Q13: What is camouflage?

Ans: Camouflage is the built-in protection in the animals which increase their chances of survival by tricking predators.

Q14: Why is camouflage important for animals?

Ans: Many tropical animals have sensitive hearing, sharp eyesight, thick skin and a skin colour which helps them to camouflage by blending with the surroundings. This helps them to protect themselves from predators. Example, big cats like lions and tigers have thick skin and sensitive hearing.

Q15: How polar bear is adapted in the polar climatic condition.

Ans: A polar bear has following adaptation features:

- They have white fur so that they are not easily visible in the snowy white background which helps it to protect them from their predators. It also helps them in catching their prey.
- They have two thick layers of fur to protect them from extreme cold.
- They also have layer of fat under their skin.
- The polar bear goes for swimming for physical activities on warm days necessary for cooling.
- Its paws are wide and large, which help it not only to swim well but also to walk with ease in the snow.
- Polar bears can remain under water for long durations.
- It has a strong sense of smell so that it can catch its prey for food.

Q16: Which type of animals are inhabitants of tropical rain forest area?

Ans: Polar bear can catch its prey for food by using its strong sense of smell.

Q17: What is the advantage of having a long sense of smell of polar bear?

Ans: The major types of animals living in the rainforests are monkeys, apes, gorillas, lions, tigers, elephants, leopards, lizards, snakes, birds and insects. The climatic conditions in rainforests are highly suitable for supporting an enormous number and variety of animals. As there is competition for food, some animals are adapted to get food, which is not easily reachable.

Q18: State some characteristics of tropical rain forest.

Ans: Tropical rainforests lie between the Tropic of Cancer and the Tropic of Capricorn, or 1,400 miles north and south of the Equator. This region receives rainfall distributed regularly throughout the year, about 6-33 feet a year. It remains frost free and warm all year long, with temperatures between 70° and 85°F with very little daily fluctuation. Tropical rainforests are found in Western Ghats and Assam in India, Southeast Asia, Central America and Central Africa. Because of continuous warmth and rain, this region supports wide variety of plants and animals.

Q19: Explain with examples how animals have adapted themselves to overcome the competition for food and shelter in the rainforests.

Ans: To overcome the competition for food and shelter, some animals are adapted to get food which is not easily reachable. Example, red-eyed frog has developed sticky pads on its feet to help to climb trees on which it lives. Another example is of the Toucan bird, which possesses a long, large beak. This helps a toucan to reach the fruits on branches which are otherwise too weak to support its weight.

Q20: Explain migration.

Ans: The regular seasonal journey undertaken by many species of animals and birds to escape the harsh and cold conditions of weather is known as migration. Many animals, birds and fishes migrate to warmer regions in winter and come back when winter is over. Migration is marked by its annual seasonality. For example, the Siberian crane that comes from Siberia migrates to India at places like Bharatpur in Rajasthan and Sultanpur in Haryana.

Q21: Give examples of some living organisms showing the phenomenon of migration.

Ans: The regular seasonal journey undertaken by many species of animals and birds to escape the harsh and cold conditions of weather is known as migration. Many animals, birds and fishes migrate to warmer regions in winter and come back when winter is over. Migration is marked by its annual seasonality. For example, the Siberian crane that comes from Siberia migrates to India at places like Bharatpur in Rajasthan and Sultanpur in Haryana.

Q22: What are adaptations? Explain the types of adaptations.

Ans: Adaptation is trait of an organism that has been favoured by natural selection. Adaptations are of following types: -

Structural adaptations are special body parts of an organism that help it to survive in its natural habitat (e.g., skin colour, shape, and body covering). Behavioural adaptations are

special ways of a particular organism that behaves to survive in its natural habitat. Physiological adaptations are systems present in an organism that allow it to perform certain biochemical reactions (e.g., making venom, being able to keep a constant body temperature).

Q23: What is the role of temperature and pressure in influencing weather pattern?

Ans: Higher temperature warms the air near the equator and causes them to expand and rise, that produces high wind and ocean currents. Similarly, pressure difference between warm and cold air causes air to flow from high pressure region to low pressure region leading production of high winds.

Q24: When the maximum and minimum temperatures are likely to occur in day?

Ans: The maximum temperature of the day occurs generally in afternoon while the minimum temperature occurs generally in the early morning.

Q25: Which of the two changes frequently, and why?

Ans: Weather changes frequently because it is based on atmospheric conditions like rainfall, humidity, wind speed etc. in that place of that day, climate is the long term average of a region's weather (e.g. 25 years)

Q26: What is the role of meteorological department of a country?

Ans: The meteorological department collects data on temperature, wind, humidity, etc. and prepares various kinds of weather reports; it also makes weather prediction and provides services to aviation sector like fog information. It also provides tsunami and earthquake information. It also provides monsoon and rainfall information and helps the farmers and agriculture sector.

Q27: Explain the relationship between climate, evolution and adaptation.

Ans: Climate plays an important role in the life of living organisms; it brings about certain changes in shape, structure and function of animal body so that it can live easily in that climatic condition. These features and habits that help an organism to survive in their particular environment condition are a result of the process of evolution.

Q28: Why do penguins huddle together?

Ans: Penguin huddle together to keep themselves warm in the extreme cold climatic condition of polar region.

Q29: Why tropical rain forest has large population of animals?

Ans: Tropical rain forest's climate is hot and it gets plenty of rainfall, because of continuous warmth and rain this region supports wide variety of plants and animals, its climatic condition is highly suitable for supporting an enormous number and variety of animals and plants.

Q30: Why in summer we feel so miserable in the afternoon and comparatively comfortable in the early morning?

Ans: Why in summer we feel so miserable in the afternoon and comparatively comfortable in the early morning because the maximum temperature of the day occurs generally in the afternoon and minimum temperature occurs generally in the early morning.

Q31: State some adaptation of animals living in tropical rain forest.

Ans: Some adaptation of the animals living in tropical rain forest includes living on trees, development of strong tails, long and large beaks, bright colours, loud voice, diet of fruits, sensitive hearing, sharp eyesight, thick skin and ability to camouflage in order to protect themselves from predators.

Q32: How camouflage helps in adaptation?

Ans: Camouflage is the built-in protection in the animals which increase their chances of survival by tricking predators.

Many tropical animals have sensitive hearing, sharp eyesight, thick skin and a skin colour which helps them to camouflage by blending with the surroundings. This helps them to protect themselves from predators. Example, big cats like lions and tigers have thick skin and sensitive hearing.

Long Q&A:

Q1: Rainforests offer hospitable climatic conditions to support huge population of animals. Explain how?

Ans:

The climatic conditions in rainforests are highly suitable for supporting an enormous number and variety of animals. Tropical rainforests lie near to the Equator. This region receives rainfall distributed regularly throughout the year, about 6-33 feet a year. It remains frost free and warm all year long, with temperatures between 70° and 85°F with very little daily fluctuation. Because of continuous warmth and rain, this region supports wide variety of plants and animals. The major types of animals living in the rainforests are

monkeys, apes, gorillas, lions, tigers, elephants, leopards, lizards, snakes, birds and insects. Tropical rainforests are found in Western Ghats and Assam in India, Southeast Asia, Central America and Central Africa.

Q2: All the changes in the weather are caused by Sun." explain how?

Ans:

Sun is the primary source of energy that causes changes in the weather because sun is a huge sphere of hot gases at a very high temperature. The distance of the sun from us is very large. Even then, the energy sent out by the sun is so huge that it is the source of all heat and light on the earth. Energy absorbed and reflected by the earth's surface, oceans and the atmosphere play important roles in determining the weather at any place. Weather varies from place to place. It is different in a desert, near coastal areas or near a mountain.

Q3: Differentiate between weather and climate.

Ans:

Weather describes the condition of the atmosphere. It might be sunny, hot, windy or cloudy, raining or snowing. The weather depends on the temperature, precipitation, humidity and atmospheric pressure of the part of atmosphere (air) closest to the surface of the earth. The weather is constantly changing as temperature and humidity change in the atmosphere.

Climate is the average weather conditions - temperature, pressure, precipitation and humidity - expected for a certain place. Climate is based on the average weather experienced over 30 years or more.

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Temperature, air pressure, wind speed, humidity and rainfall are the essential elements determining weather of a place.