

## Weather, Climate and Adaptations of Animals to Climate

1. Consider the following statements and select the option which correctly identifies true (T) and false (F) ones.

- (i) North-East India receives very little rain throughout the year, so we can say that climate in North-East India is hot and dry.
- (ii) Thick layer of subcutaneous fat, thick skin and a dense feather cover in polar birds like penguins protect them from severe cold weather.
- (iii) Polar animals need to conserve water due to water scarcity.
- (iv) As we move higher up from sea level temperature becomes lower.

	(i)	(ii)	(iii)	(iv)
(a)	F	F	T	T
(b)	F	T	F	T
(c)	F	F	T	F
(d)	T	T	F	T

2. Which of the following adaptations of polar bear are not meant for hunting prey and getting protection from predators?

- (i) White colour of the fur
- (ii) Huge teeth
- (iii) Long hair between the pads on its feet
- (iv) Two thick layers of the fur
- (v) Sharp claws on each foot

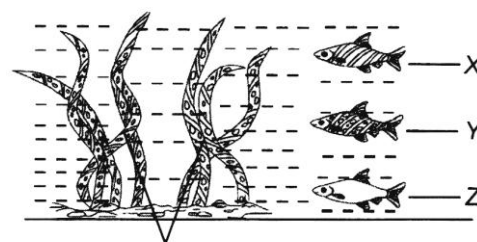
- (a) (i) and (v) only
- (b) (iii) and (iv) only
- (c) (ii) and (iii) only
- (d) (i) and (iv) only

3. Which of the following adaptations are shown by kangaroo rats?

- (i) They possess blubber to insulate body.
- (ii) They need to drink lot of water and breathe at a slow rate to conserve water.
- (iii) They excrete very concentrated urine.
- (iv) They undergo aestivation to cope with heat.

- (a) (iii) and (iv) only
- (b) (i), (iii) and (iv) only
- (c) (ii), (iii) and (iv) only
- (d) (ii) and (iii) only

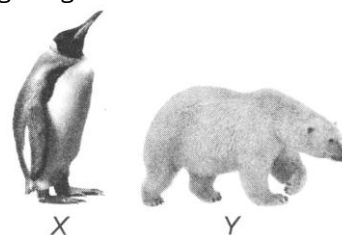
4. Three species of fishes X, Y and Z with different body patterns are found in a lake. A predator who feeds on all these three fishes is introduced into the lake. Which of these fishes will be least affected?



Aquatic weeds

- (a) Fish Z because it lives near the ground.
- (b) Fish Y because it can show camouflage.
- (c) Fish X because it lives near surface.
- (d) All the three fishes will be equally affected.

5. Which of the following statements are incorrect regarding the given animals?



- (i) Both X and Y possess streamlined body and webbed feet.
- (ii) Both are good swimmers.
- (iii) Y has a thick layer of fat under its skin with fur on its body, while X has thick skin and a layer of fat under its skin.
- (iv) Both live together in large numbers and huddle together to keep themselves warm.
- (v) Y has very strong sense of smell unlike X.

- (a) (ii) and (iv) only
- (b) (i), (ii) and (iv) only
- (c) (ii), (iii) and (v) only
- (d) (iv) only

6. The given figure shows a turkey, a flightless bird. Why cannot a turkey fly?

- (i) It has underdeveloped
- (ii) It is too heavy.
- (iii) It has hollow bones,
- (iv) It has very few feathers.

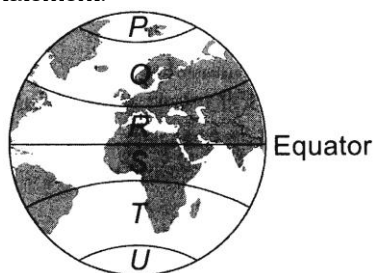


- (a) (ii) only
- (b) (i) and (ii) only
- (c) (ii) and (iv) only
- (d) (i), (ii), (iii) and (iv)

7. Pick the odd out from each series given below and select the correct option.
- (i) Elephant, Monkey, Red-eyed frog, Polar bear
  - (ii) Loud voice, Bright colours, Strong tails, Wide and large paws
  - (iii) Alaska, Nigeria, Canada, Norway
  - (iv) Humidity, Rainfall, Soil, Wind speed

I	II	III	IV
(a) Polar bear	Wide and large paws	Nigeria	Soil
(b) Red eyed frog	Loud voice	Canada	Wind speed
(c) Polar bear	Strong tails	Alaska	Rainfall
(d) Red eyed frog	Wide and large paws	Alaska	Humidity

8. Which of these is a behavioural adaptation?
- (a) A hognose snake pretends as dead to trick the predator.
  - (b) A frog's light-coloured belly makes it harder for a predatory fish to see it against sunlight on the water surface.
  - (c) The scarlet king snake looks very much like the poisonous coral snake.
  - (d) A treehopper on a leaf or twig resembles a thorn.
9. Refer to the given figure showing different temperature zones of the Earth and select the correct statement.



- (a) Labelled parts P and U are the torrid zones.
  - (b) Labelled parts Q and T are temperate zones.
  - (c) Labelled parts R and S are frigid zones.
  - (d) None of these
10. Read the following statements carefully and select the option which correctly identifies true (T) and false (F) ones.
- (i) The seasonal movement of the complete population of animals from one area to another is termed migration.
  - (ii) Heavy and solid bones help penguins to swim through water at a speed up to 15 miles per hour.

- (iii) Toucans have four clawed toes in each leg, two in front and two at the back.
- (iv) Most rainforests lie between the Tropic of Cancer and the Tropic of Capricorn, that is why they are often called as tropical rainforests.

	(i)	(ii)	(iii)	(iv)
(a)	F	T	T	T
(b)	T	T	F	T
(c)	T	F	T	T
(d)	F	F	F	T

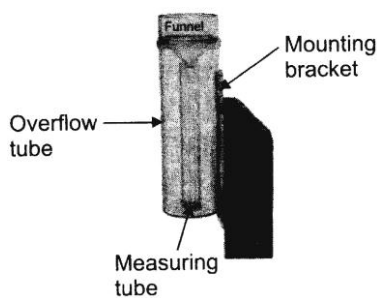
11. Select the incorrect match.
- (a) Polar bear - Hibernation
  - (b) Tortoise - Aestivation
  - (c) Grasshopper - Camouflage
  - (d) Lion tailed macaque - Mimicry
12. Read the following statements.
- (i) Polar bears have two thick layers of fur, as well as a layer of fat under the skin.
  - (ii) At the poles, there is six months of day and six months of night.
  - (iii) The day-to-day conditions of the atmosphere at a place with regard to factors like temperature, humidity, rainfall, speed and direction of wind, etc., is called the climate of that place.
  - (iv) Seals have a thick deposition of fat, called blubber that protects them from the cold.

Which of these statements are correct?

- (a) (i) and (ii) only
  - (b) (i), (iii) and (iv) only
  - (c) (i), (ii) and (iv) only
  - (d) All of these
13. The organism in the given figure has a flattened body shape, This characteristic helps the organism to



- (a) Survive for a long period without food
  - (b) Fly in the air
  - (c) Camouflage itself
  - (d) Crawl between crevices and spaces easily.
14. The figure shows an instrument which is used to measure \_\_\_\_\_.



- (a) Earthquake (b) Rainfall  
(c) Wind speed (d) Relative humidity

15. Read the following statements.  
(A) In India, rain is mainly brought by two kinds of humidity-laden winds, \_\_\_ and \_\_\_\_.  
(B) Scientists who study and predict weather are known as \_\_\_\_.  
(C) The climate in Kerala is \_\_\_ and \_\_\_\_.

Select the option which correctly fills the blanks in any two of these statements.

- (a) (B) Geologists; (C) Hot, Dry  
(b) (A) South-West monsoon, North-East monsoon; (C) Hot, Wet  
(c) (A) South-East monsoon, North-West monsoon; (B) Meteorologists  
(d) (A) South-East monsoon, North-West monsoon; (B) Geologists

### Achievers Section (HOTS)

16. The lizard is well-adapted to live in human dwellings. Which function of its adaptations is incorrectly described?

Adaptation	Function
(a) Long, sticky tongue	To catch fast-moving prey
(b) Long, narrow and flat body	To crawl between narrow crevices and spaces easily
(c) Sticky pads on the underside of the feet	To walk on walls and ceilings without falling
(d) Tail that can drop off and wriggles for a while	To attract mates for reproduction

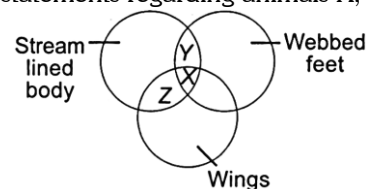
17. Consider the following statements each with one or two blanks.  
(i) Camel's skin does not possess \_\_\_ glands.  
(ii) The Siberian crane migrates from Russia to India as the \_\_\_ approach.  
(iii) Many birds living in polar regions \_\_\_ to warmer regions in winters.

- (iv) The places near the equator are usually \_\_\_ because near the equator Sun's rays fall \_\_\_\_.

Fill up the blanks by selecting the correct option.

(i)	(ii)	(iii)	(iv)
(a) Sweat	Win-ters	Migrate	Hotter, Vertically
(b) Sweat	Win-ters	Hiberna-te	Hotter, Horizontally
(c) Sweat	Sum-mers	Migrate	Colder, Horizontally
(d) Sweat	Sum-mers	Migrate	Colder, Vertically

18. Refer to the given Venn diagram and select the correct statements regarding animals X, Y and Z.



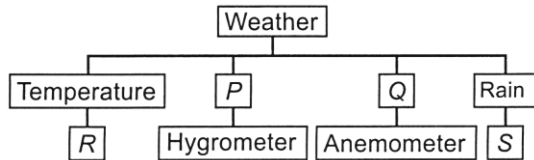
- (i) Y can close its nostrils and remain underwater for long duration.  
(ii) X possess glands under the eyes that help the body to get rid of excess salt.  
(iii) Blubber is present under the skin of X and Z which protects them from cold.  
(iv) X and Y are adapted to live in extremely cold climate of polar regions.  
(v) Y live in groups and huddle together to keep themselves warm.  
(vi) Z camouflage with the surrounding to avoid predators.

- (a) (i), (ii), (iv) and (vi) only  
(b) (i), (iii), (iv), (v) and (vi) only  
(c) (ii), (iii), (iv) and (v) only  
(d) (i), (ii), (iii) (iv), (v) and (vi)

19. Read the given passage.  
The land near the equator is colder than the land away from it. Near the equator Sun's rays fall vertically. As the latitude increases, the rays become more and more slanting. Vertical rays spread over a larger land area than slanting rays. Also, they pass through a thicker layer of the atmosphere which absorbs a large part of their heat. Hence, the land near the equator gets heated up lesser by the Sun than the land away from it, in a given time.  
Some of the words have been italicised in the given passage. Select the Incorrect statement regarding these.

- (a) The words colder and lesser need not to be replaced as they are correctly mentioned.  
 (b) Larger should be replaced by smaller  
 (c) Thicker should be replaced by thinner.  
 (d) None of these

- 20.** Refer to the given flow chart and select the option which correctly identifies P, Q,



P	Q	R	S
(a) Relative humidity	Wind speed	Thermo-meter	Rain gauge
(b) Wind speed	Relative humidity	Thermo-meter	Psychro-meter
(c) Relative humidity	Wind speed	Psychro-meter	Rain gauge
(d) Wind speed	Relative humidity	Thermo-meter	Rain gauge

## Answer key

**1.** B

**2.** B

**3.** A

**4.** B

**5.** D

**6.** B

**7.** A

**8.** A

**9.** B

**10.** C

**11.** D

**12.** C

**13.** D

**14.** B

**15.** B

**16.** D

**17.** A

**18.** A

**19.** A

**20.** A

## HINTS & EXPLANATIONS

1. (b): North-East India receives rain for a major part of the year. Therefore, the climate of the North-East is wet. Polar animals do not need to conserve water in their bodies as they are living in cold environment.
2. (b): Long hair between the pads of their feet and two thick layers of fur enable polar bears to survive in extreme cold.
3. (a): Kangaroo rats live in deserts (hot and dry place), so they must conserve water. They do this by excreting very concentrated urine and by lowering their metabolic rate.  
They obtain enough water from the metabolic oxidation of the seeds they eat to survive and do not need to drink water at all.
4. (b): Camouflage is a high degree of similarity between an animal and its visual environment, which enables it to remain unnoticed from distance or get concealed. By blending into the background, the animal can escape from predators or remain invisible to its potential prey. In the given figure, fish Vis camouflaging aquatic weeds, because it has same pattern on its body as the aquatic weeds. Therefore, on introducing predator into the lake, fish Y will be least affected.
5. (d): In the given figure X and Y represent penguin and polar bear respectively. Penguin live together in large numbers and huddle together to keep themselves warm but polar bear leads solitary life.
6. (b) Not Available
7. (a): Elephant, monkey and red-eyed frog live in tropical rainforest while polar bear lives in polar region. Loud voice, bright colours and strong tails are adaptations of animals living in rainforest while wide and large paws is polar region adaptation. Alaska, Canada and Norway are countries of the Polar Regions while Nigeria is an African country. Humidity, rainfall and wind speed are the elements of weather.
8. (a) Not Available
9. (b): There are mainly three temperature zones throughout the world based on the difference in their climates.  
In the given figure, P and U refer to frigid zones (cold temperate), Q and T are temperate zones (warm temperate) and R and S are torrid zones (tropical).
10. (c): Penguins have streamlined bodies and webbed feet that help them in swimming.
11. (d): Mimicry is resemblance of one species with another in order to obtain advantage, especially against predation. Lion-tailed macaque does not exhibit mimicry.
12. (c): The day-to-day conditions of the atmosphere at a place with regard to factors like temperature, humidity, rainfall, speed and direction of wind, etc., is called the weather of that place,
13. (d) Not Available
14. (b): The figure shows a rain gauge. This instrument is used to measure the amount of rainfall over a set period of time.
15. (b): (a) South-West monsoon, North-East monsoon, (b) Meteorologists, (c) Hot, Wet
16. (d): Lizards, if get captured by the tail, shed (drop off) the tail and are able to flee. The detached tail continues to wriggle for some time creating a deceptive sense of continued struggle and distracting the predator's attention from the fleeing prey animal. The lizard can partially regenerate its tail over a period of weeks. Thus, it is a self-defense mechanism to elude a predator's grasp and not to attract mates for reproduction.
17. (a) Not Available
18. (a): In the given Venn diagram X, Y and refer to penguin, polar bear and toucan respectively. Blubber is present under the skin of polar animals such as polar bear for protection from cold. Penguin live in group and huddle together to keep themselves warm whereas polar bears lead a solitary life.
19. (a) Not Available
20. (a) Not Available