Atmosphere and Climate

Standard difficulty · 20 questions · 40 marks · Time: 37 minutes

Name: _____ Date: _____ Score: ____ / 40

Write full answers in Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. The most abundant gas in the atmosphere is:
(a) carbon dioxide **(b)** argon **(c)** oxygen **(d)** nitrogen

2. Which describes the stratosphere?
(a) very thin air where light gases escape **(b)** auroras and radio-wave reflection
(c) the ozone layer and aeroplane routes **(d)** where meteors burn up

3. In the traditional calendar, Hemanta covers roughly:
(a) January–February **(b)** May–June
(c) March–April **(d)** November–December

4. What is meant by “precipitation”?
(a) water falling as rain, snow or hail **(b)** height above sea level
(c) a wind blowing from the west **(d)** water vapour in the air

5. In the book’s table, Chennai gets 128.6 cm of rain a year and Nagpur 124.2 cm. What is the difference?
(a) 5.9 cm **(b)** 252.8 cm **(c)** 14.4 cm **(d)** 4.4 cm

6. In the book’s table, the yearly temperature range is 18.9 °C at Delhi and 10.8 °C at Kolkata. Which has the more extreme climate?
(a) Neither has a range **(b)** Delhi
(c) Kolkata **(d)** Both are the same

7. Air is about 78% nitrogen. How many litres of nitrogen are in 4,300 litres of air?
(a) 33,540 litres **(b)** 903 litres **(c)** 3,354 litres **(d)** 4,222 litres

8. In the book’s table, which of these gets the most rain in a year: Chennai (128.6 cm), Shillong (225.3 cm), Nagpur (124.2 cm)?
(a) They all get the same **(b)** Nagpur
(c) Chennai **(d)** Shillong

Section B — Short answer — 8 × 2 = 16 marks

9. What is the difference between weather and climate?

10. Give one feature of each layer: (a) the troposphere (b) the thermosphere

11. Which months does each ritu roughly cover? (a) Hemanta (b) Shishira

12. Explain each term: (a) precipitation (b) monsoon

13. Using the book's table: Thiruvananthapuram gets 181.2 cm and Jodhpur 36.6 cm of rain a year. Which is wetter, and by how much?

14. A place's hottest month averages 39 °C and its coldest 22 °C. What is its yearly temperature range? Is it more likely near the coast or far inland?

15. A room holds 190 cubic metres of air. About how much of it is nitrogen, at 78%?

16. What is a wind called if it blows from (a) the north (b) the east?

Section C — Longer answers — 4 × 4 = 16 marks

17. Describe the layers of the atmosphere and one feature of each.

18. Match each with its feature: (a) the stratosphere (b) the exosphere (c) the troposphere. Choose from: where weather happens; the ozone layer and aeroplane routes; very thin air where light gases escape.

19. From the book's table: Shillong 225.3 cm, Delhi 67.0 cm, Mumbai 183.4 cm. (a) Put them in order, wettest first. (b) What is the difference between the wettest and the driest? (c) Give one reason places differ so much in rainfall.

20. The book's table gives a yearly range of 5.6 °C for Mumbai and 2.5 °C for Thiruvananthapuram. Explain why one range is larger.

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Answer key

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Q	Answer	Working
1	**(d) nitrogen**	—
2	**(c) the ozone layer and aeroplane routes**	—
3	**(d) November–December**	—
4	**(a) water falling as rain, snow or hail**	—
5	**(d) 4.4 cm**	128.6 − 124.2
6	**(b) Delhi**	a larger range means more extreme
7	**(c) 3,354 litres**	78% of 4,300
8	**(d) Shillong**	compare the three figures
9	**Weather is the day-to-day state of the air; climate is the average over a large area for 30 years or more.**	—
10	**(a) where weather happens (b) auroras and radio-wave reflection**	—
11	**(a) November–December (b) January–February**	—
12	**(a) water falling as rain, snow or hail (b) a seasonal reversal of winds**	—
13	**Thiruvananthapuram, by 144.6 cm**	181.2 − 36.6
14	**17 °C; far inland**	39 − 22
15	**about 148.2 cubic metres**	78% of 190
16	**(a) a northerly (b) an easterly**	winds are named after where they come from
17	**Troposphere: weather; stratosphere: ozone and aeroplanes; mesosphere: meteors burn up; thermosphere: auroras and radio waves; exosphere: very thin air where light gases escape.**	—
18	**(a) the ozone layer and aeroplane routes (b) very thin air where light gases escape (c) where weather happens**	—
19	**(a) Shillong, Mumbai, Delhi (b) 158.3 cm (c) e.g. distance from the sea, mountains blocking moist winds, or the monsoon's path.**	—
20	**Mumbai has the larger range, likely because it is farther from the sea or**	—

Q	Answer	Working
	higher up; the sea keeps coastal places mild.	

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