ASM TUITION ACADEMY

PHYSICS

YEAR 8

TOPIC: WHAT CAUSES PRESSURE IN A GAS?

TEST QUESTIONS

TOTAL MARKS: 55

TIME: 45 MINUTES

Section A: Multiple-Choice Questions

Q1. How does the particle model describe gas particles? [1]

A. They are arranged in fixed rows.
B. They move around very quickly and randomly.
C. They cannot move.
D. They are tightly packed together.

Q2. Why can a gas be compressed? [1]

A. Its particles have no mass.
B. Its particles stop moving.
C. There are large gaps between its particles.
D. Its particles are fixed in place.

Q3. What causes gas pressure on a surface? [1]

A. Gas particles colliding with the surface
B. Gas particles changing colour
C. Gas particles becoming solid
D. Gas particles disappearing

Q4. What is the atmosphere? [1]

A. A layer of liquid around Earth
B. A band of gas surrounding Earth
C. A layer of rock beneath Earth
D. A layer of ice around Earth

Q5. Which gases make up most of the air? [1]

A. Hydrogen and helium
B. Carbon dioxide and hydrogen
C. Nitrogen and oxygen
D. Oxygen and helium

Q6. What prevents air molecules from escaping into space? [1]

A. Friction
B. Earth's gravity
C. Atmospheric pressure alone
D. Sunlight

Q7. What is atmospheric pressure at sea level approximately? [1]

A. 10,000 N/m²
B. 30,000 N/m²
C. 100,000 N/m²
D. 500,000 N/m²

Q8. What happens to atmospheric pressure as altitude increases? [1]

A. It increases
B. It decreases
C. It always remains constant
D. It immediately becomes zero

Q9. Which instrument measures atmospheric pressure? [1]

A. Thermometer
B. Ammeter
C. Barometer
D. Voltmeter

Q10. On a weather map, what does the letter H represent? [1]

A. High-pressure region
B. High temperature only
C. Heavy rainfall only
D. Humidity

Section B: Fill in the Blanks

Q11. Gas particles move around very _____. [1]

Q12. There are large _____ between gas particles. [1]

Q13. Gas particles exert a pushing force when they _____ with a surface. [1]

Q14. Gas pressure is caused by collisions of gas particles with a _____. [1]

Q15. The atmosphere is a band of _____ surrounding Earth. [1]

Q16. The two main gases in air are nitrogen and _____. [1]

Q17. Atmospheric pressure at sea level is about _____ N/m². [1]

Q18. Atmospheric pressure at the summit of Mount Everest is about _____ N/m². [1]

Q19. Atmospheric pressure is measured using a _____. [1]

Q20. On a weather map, the letter L represents a _____-pressure region. [1]

Section C: Short-Answer Questions

Q21. Describe the movement and arrangement of gas particles according to the particle model. [3]

Q22. Explain how collisions between gas particles and a surface produce gas pressure. [4]

Q23. Define gas pressure and state what happens when gas particles collide with a surface. [4]

Q24. What is the atmosphere made of, and why can air molecules not escape into space despite moving very quickly? [4]

Q25. Explain why atmospheric pressure decreases as altitude increases. [4]

Q26. Atmospheric pressure at sea level is about 100,000 N/m², while at the summit of Mount Everest it is about 30,000 N/m². Calculate the difference in pressure and identify where the pressure is greater. [4]

Q27. What is a barometer? Explain why atmospheric pressure can vary from one location or time to another. [4]

Q28. A weather map shows a pressure reading of 1020. Add two zeros to convert this reading into atmospheric pressure in N/m². Show your working and state whether the region is high or low pressure. [4]

Q29. Explain why mountaineers climbing Mount Everest may need to carry oxygen cylinders. [4]