

**MID-TERM EXAMINATION — Class 8 Science (Set 3)**

Chapters: 1 Investigative World of Science · 2 Invisible Living World · 3 Health · 4 Electricity: Magnetic & Heating Effects · 5 Exploring Forces · 6 Pressure, Winds, Storms & Cyclones · 7 Particulate Nature of Matter

**Max
Marks:
80**

Name: _____

Time: 3 Hours

General Instructions: All questions are compulsory. Section A — 16×1 (MCQ / Assertion-Reason), Section B — 6×2, Section C — 8×3, Section D — 4×5, Section E — 2×4 (case study). Draw neat labelled diagrams wherever required.

SECTION A**Objective Type — 1 mark each**

- Q1.** A good scientific experiment must be: **[1]**
- (a) done only once
 - (b) repeatable and fair
 - (c) kept secret
 - (d) based on opinion
- Q2.** The instrument used to see very tiny organisms is the: **[1]**
- (a) telescope
 - (b) microscope
 - (c) periscope
 - (d) barometer
- Q3.** Which of the following is NOT a microorganism? **[1]**
- (a) Bacterium
 - (b) Virus
 - (c) Mushroom-shaped fungus (mould)
 - (d) Housefly
- Q4.** Ringworm is a disease caused by a: **[1]**
- (a) virus
 - (b) fungus
 - (c) protozoan
 - (d) bacterium
- Q5.** Food is prevented from spoiling by adding salt or sugar because microbes cannot grow without: **[1]**
- (a) light
 - (b) water
 - (c) sound
 - (d) soil
- Q6.** Deficiency of vitamin D leads to: **[1]**
- (a) scurvy
 - (b) rickets

- (c) anaemia
- (d) beriberi

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- Q7.** Which one is a non-communicable disease? **[1]**
- (a) Malaria
 - (b) Diabetes
 - (c) Cholera
 - (d) Common cold
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- Q8.** The heating effect of current depends on the wire's: **[1]**
- (a) colour
 - (b) resistance
 - (c) length only
 - (d) smell
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- Q9.** A current-carrying coil wound on an iron core behaves like a: **[1]**
- (a) resistor
 - (b) magnet
 - (c) cell
 - (d) switch
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- Q10.** An electromagnet loses its magnetism when: **[1]**
- (a) the current is switched off
 - (b) more turns are added
 - (c) the core is iron
 - (d) the current is increased
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- Q11.** The SI unit of force is the: **[1]**
- (a) joule
 - (b) newton
 - (c) pascal
 - (d) watt
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- Q12.** Rolling friction is _____ than sliding friction: **[1]**
- (a) greater
 - (b) smaller
 - (c) equal
 - (d) zero
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- Q13.** Atmospheric pressure decreases as we go: **[1]**
- (a) higher up
 - (b) deeper down
 - (c) sideways
 - (d) nowhere
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- Q14.** The device used to measure wind speed is the: **[1]**
- (a) barometer
 - (b) anemometer

(c) thermometer

(d) ammeter

Q15. Assertion (A): Antibiotics do not work against the common cold. [1]

Reason (R): The common cold is caused by a virus, not a bacterium.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is not the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q16. Assertion (A): Gases can be compressed easily. [1]

Reason (R): Gas particles have large spaces between them.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is not the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

SECTION B

Very Short Answer — 2 marks each

Q17. Why must a scientific experiment be repeatable? [2]

Q18. Name the microorganisms that cause: (a) typhoid, (b) ringworm. [2]

Q19. What is immunity? Name one way to build immunity against a disease. [2]

Q20. Why is nichrome used as the heating element rather than copper? [2]

Q21. State two methods to reduce friction. [2]

Q22. Why can gases be compressed but solids cannot? [2]

SECTION C

Short Answer — 3 marks each

Q23. Distinguish between an observation and an inference with an example. [3]

Q24. Explain, with examples, how microorganisms are useful in (a) agriculture and (b) medicine. [3]

Q25. What is a deficiency disease? Name any two along with the missing nutrient. [3]

Q26. State two factors on which the strength of an electromagnet depends and explain each briefly. [3]

Q27. What is friction? Explain why friction is called 'a necessary evil'. [3]

Q28. Explain the role of air pressure in the working of a straw when we drink a cold drink. [3]

Q29. Describe three precautions to be observed during a thunderstorm. [3]

Q30. Explain diffusion with one example each in liquids and gases. [3]

SECTION D

Long Answer — 5 marks each

Q31. (a) Classify microorganisms into four groups with one example of each. (b) Give two methods of preserving food and explain how each stops microbial growth. [5]

- Q32.** (a) What is a balanced diet and why is it needed? (b) Name the five main nutrients and one function of each. [5]
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- Q33.** (a) Explain the magnetic effect of electric current with one application. (b) List two ways to make a stronger electromagnet. [5]
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- Q34.** (a) Define pressure and give its unit. (b) A force of **240** N acts on an area of **4 m²**; find the pressure. (c) Why does a camel walk easily on sand while a horse cannot? [5]
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SECTION E

Case-Study Based — 4 marks each

- Q35. Case Study 1 — Spread of disease.** During the rainy season, several people in a locality fall ill with fever and diarrhoea after a water pipe leaks near a drain. [4]
- (i) Name one water-borne disease that could spread this way. [1]
 - (ii) Name the type of microorganism usually responsible. [1]
 - (iii) State one immediate step to make the water safe. [1]
 - (iv) Suggest one long-term preventive measure. [1]
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- Q36. Case Study 2 — Pressure cooker.** Food cooks faster in a pressure cooker than in an open pot. [4]
- (i) How does trapped steam change the pressure inside the cooker? [1]
 - (ii) What happens to the boiling point of water at higher pressure? [1]
 - (iii) Why does this cook food faster? [1]
 - (iv) Name the safety part that releases excess pressure. [1]
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— All the Best! —

ANSWER KEY & MARKING SCHEME

SECTION A

Answers

- Q1.** (b) repeatable and fair
- Q2.** (b) microscope
- Q3.** (d) Housefly
- Q4.** (b) fungus
- Q5.** (b) water
- Q6.** (b) rickets
- Q7.** (b) Diabetes
- Q8.** (b) resistance
- Q9.** (b) magnet
- Q10.** (a) the current is switched off
- Q11.** (b) newton
- Q12.** (b) smaller
- Q13.** (a) higher up
- Q14.** (b) anemometer
- Q15.** (a) Both A and R true, R explains A
- Q16.** (a) Both A and R true, R explains A

SECTION B

Answers

- Q17.** So that others can repeat it and get the same result, confirming the finding is reliable and not a chance/error.
- Q18.** (a) Typhoid — *Salmonella typhi* (bacterium). (b) Ringworm — a fungus.
- Q19.** Immunity is the body's ability to fight and resist disease-causing microbes. It can be built by vaccination (or by recovering from the disease).
- Q20.** Nichrome has high resistance and a high melting point, so it becomes hot and glows without melting; copper has low resistance and would not heat up much.
- Q21.** Use lubricants (oil/grease), use ball-bearings/wheels, make surfaces smooth, use a streamlined shape (any two).
- Q22.** Gas particles have large empty spaces between them so they can be pushed closer (compressed); solid particles are already tightly packed with almost no space.

SECTION C

Answers

- Q23.** An observation is what you directly notice (e.g. 'the plant leaves turned yellow'); an inference is the explanation you reason out (e.g. 'the plant may lack nitrogen').
- Q24.** (a) Agriculture: *Rhizobium* fixes nitrogen enriching soil; microbes make compost/manure. (b) Medicine: microbes are used to make antibiotics (penicillin) and vaccines.
- Q25.** A disease caused by long-term lack of a nutrient. Examples: scurvy (vitamin C), rickets (vitamin D), anaemia (iron) — any two.
- Q26.** (i) Number of turns — more turns give a stronger field. (ii) Amount of current — larger current gives a stronger magnet (a soft-iron core also helps).

- Q27.** Friction opposes relative motion between surfaces in contact. It is a 'necessary evil' because we need it to walk, grip and brake (necessary), yet it wears out parts and wastes energy as heat (evil).
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- Q28.** When we suck, we lower the air pressure inside the straw; the higher atmospheric pressure on the drink pushes it up the straw into our mouth.
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- Q29.** Stay indoors, away from windows; do not shelter under a tall tree or use metal objects; unplug electrical appliances; avoid open fields and water bodies (any three).
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- Q30.** Diffusion is the spreading and mixing of particles on their own. In liquids: a drop of ink spreads in water. In gases: the smell of perfume fills a room.
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SECTION D

Answers

- Q31.** (a) Bacteria (Lactobacillus), Fungi (yeast), Protozoa (Amoeba), Algae (Spirogyra). (b) Preservation: (i) Salting/sugaring removes water microbes need; (ii) Refrigeration slows microbial growth by cold; (also drying, boiling).
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- Q32.** (a) A balanced diet supplies all nutrients in correct amounts for growth, energy and protection. (b) Carbohydrates — energy; Proteins — growth/repair; Fats — energy store; Vitamins — protection; Minerals — healthy bones/blood.
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- Q33.** (a) A current produces a magnetic field around it — used in electric bells, cranes, loudspeakers. (b) Increase the number of turns and increase the current (use a soft-iron core).
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- Q34.** (a) $\text{Pressure} = \frac{\text{Force}}{\text{Area}}$; unit pascal (Pa). (b) $P = \frac{2404}{40} = 60 \text{ Pa}$. (c) A camel's broad feet spread its weight over a larger area, giving less pressure so it does not sink in soft sand.
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SECTION E

Answers

- Q35.** (i) Cholera / typhoid / diarrhoea. (ii) Bacteria. (iii) Boil the water before drinking (or add chlorine tablets). (iv) Repair the pipe and keep drinking water lines away from drains / proper sanitation.
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- Q36.** (i) Trapped steam raises the pressure inside. (ii) The boiling point of water rises above 100°C. (iii) Food cooks faster because it is cooked at a higher temperature. (iv) The safety valve / weight (whistle).
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