

**MID-TERM EXAMINATION — Class 8 Science**

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.** The first step of the scientific method of investigation is usually: [1]
- (a) performing an experiment
 - (b) making an observation
 - (c) drawing a conclusion
 - (d) writing a report
- Q2.** A tentative, testable explanation proposed for an observation is called a: [1]
- (a) theory
 - (b) law
 - (c) hypothesis
 - (d) conclusion
- Q3.** The microorganism used in the formation of curd from milk is: [1]
- (a) Rhizobium
 - (b) Lactobacillus
 - (c) yeast
 - (d) Penicillium
- Q4.** Which of the following diseases is caused by a virus? [1]
- (a) Malaria
 - (b) Typhoid
 - (c) Common cold
 - (d) Ringworm
- Q5.** Nitrogen-fixing bacteria found in the root nodules of leguminous plants are: [1]
- (a) Lactobacillus
 - (b) Rhizobium
 - (c) Amoeba
 - (d) Yeast
- Q6.** The deficiency of vitamin C in the diet causes the disease: [1]
- (a) scurvy
 - (b) rickets
 - (c) night blindness

(d) goitre

Q7. Which of the following is a communicable disease? **[1]**

- (a) Diabetes
- (b) Tuberculosis
- (c) Scurvy
- (d) Night blindness

Q8. The heating effect of electric current is used in an: **[1]**

- (a) electric bell
- (b) electric motor
- (c) electric iron
- (d) electric fan

Q9. A device that works on the magnetic effect of electric current is the: **[1]**

- (a) electric heater
- (b) electromagnet
- (c) fuse
- (d) bulb

Q10. The SI unit of electric current is the: **[1]**

- (a) volt
- (b) ampere
- (c) ohm
- (d) watt

Q11. The force of attraction between any two objects because of their mass is called: **[1]**

- (a) frictional force
- (b) muscular force
- (c) gravitational force
- (d) magnetic force

Q12. Friction between two moving surfaces can be reduced by using: **[1]**

- (a) sand
- (b) lubricants
- (c) rough tyres
- (d) brakes

Q13. The instrument used to measure atmospheric pressure is the: **[1]**

- (a) thermometer
- (b) barometer
- (c) anemometer
- (d) ammeter

Q14. A high-speed rotating system of winds with very low pressure at its centre is called a: **[1]**

- (a) breeze
- (b) monsoon
- (c) cyclone

(d) thunderstorm

Q15. Assertion (A): A cyclone can cause heavy damage to coastal areas. [1]

Reason (R): A cyclone is a high-pressure wind system with calm winds at the centre.

- (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): Oil is applied between the moving parts of a machine. [1]

Reason (R): Lubricants reduce the friction between moving surfaces.

- (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. Differentiate between an *observation* and an *inference* with one example each. [2]

Q18. Name any two useful microorganisms and state one use of each. [2]

Q19. What are deficiency diseases? Give one example along with the nutrient whose lack causes it. [2]

Q20. State any two uses of the heating effect of electric current in daily life. [2]

Q21. Define force. State any two effects that a force can produce. [2]

Q22. Why do gases diffuse faster than liquids? [2]

SECTION C

Short Answer — 3 marks each

Q23. Name the causative microorganism and one preventive measure for each: (a) Malaria, (b) Typhoid. [3]

Q24. What is nitrogen fixation? How do Rhizobium bacteria help farmers improve soil fertility? [3]

Q25. Distinguish between communicable and non-communicable diseases with one example of each, and state two ways in which communicable diseases spread. [3]

Q26. Describe how an electromagnet can be made. State any two factors that affect the strength of an electromagnet. [3]

Q27. What is friction? State two advantages and one disadvantage of friction. [3]

Q28. Explain how the uneven heating of the earth's surface produces winds. [3]

Q29. List any three safety measures that should be taken during an approaching cyclone. [3]

Q30. State any three main ideas (postulates) of the particulate (particle) nature of matter. [3]

SECTION D

Long Answer — 5 marks each

- Q31.** (a) Classify microorganisms into their four major groups with one example of each. (b) State any two harmful effects of microorganisms. [5]
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- Q32.** (a) What is meant by a balanced diet? (b) Name any four nutrients and state one function of each. (c) Suggest one way to keep our surroundings clean and hygienic. [5]
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- Q33.** (a) Explain, with one application each, the heating effect and the magnetic effect of electric current. (b) What is an electromagnet, and state two of its uses. [5]
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- Q34.** (a) Define pressure and write its relation with force and area. (b) A force of **100 N** acts uniformly on a surface of area **2 m²**. Calculate the pressure exerted. (c) Why does a sharp knife cut better than a blunt one? [5]
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SECTION E

Case-Study Based — 4 marks each

- Q35. Case Study 1 — The approaching cyclone.** The weather department warns a coastal town that a cyclone is likely to hit within 24 hours. Fishermen are asked not to go to sea and residents are told to move to safer places. [4]
- (i) Name the instrument used to measure wind speed. [1]
 - (ii) State whether the air pressure at the centre of a cyclone is high or low. [1]
 - (iii) Write any two precautions the residents should take. [1]
 - (iv) Name the national agency that issues weather and cyclone warnings in India. [1]
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- Q36. Case Study 2 — Making an electromagnet.** A student winds insulated copper wire around an iron nail and connects the ends to a cell. When the circuit is switched on, the nail is able to attract iron pins. [4]
- (i) Which effect of electric current is being used here? [1]
 - (ii) State one way to increase the strength of this electromagnet. [1]
 - (iii) Write one practical use of an electromagnet. [1]
 - (iv) What happens to the nail when the current is switched off? [1]
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— All the Best! —

ANSWER KEY & MARKING SCHEME

SECTION A

Answers

- Q1. (b) making an observation
- Q2. (c) hypothesis
- Q3. (b) Lactobacillus
- Q4. (c) Common cold
- Q5. (b) Rhizobium
- Q6. (a) scurvy
- Q7. (b) Tuberculosis
- Q8. (c) electric iron
- Q9. (b) electromagnet
- Q10. (b) ampere
- Q11. (c) gravitational force
- Q12. (b) lubricants
- Q13. (b) barometer
- Q14. (c) cyclone
- Q15. (c) A true, R false (a cyclone is a LOW-pressure system)
- Q16. (a) Both A and R true, R explains A

SECTION B

Answers

- Q17. An **observation** is information gathered directly through the senses/instruments (e.g. 'the ground is wet'); an **inference** is a conclusion drawn from observations (e.g. 'it must have rained').
- Q18. Lactobacillus — makes curd; Rhizobium — fixes nitrogen in soil; yeast — used in baking (any two).
- Q19. Diseases caused by the long-term lack of a particular nutrient in the diet. Example: scurvy — deficiency of vitamin C (or rickets — vitamin D).
- Q20. In electric iron, heater, geyser, toaster, electric bulb filament, fuse (any two).
- Q21. Force is a push or a pull acting on an object. Effects: it can change the shape, the speed, or the direction of motion of an object (any two).
- Q22. The particles of a gas are far apart and move very fast and freely, so they spread and mix much more quickly than the closely-packed, slower particles of a liquid.

SECTION C

Answers

- Q23. (a) Malaria — caused by *Plasmodium* (protozoan, spread by female Anopheles mosquito); prevention: prevent mosquito breeding / use nets. (b) Typhoid — caused by *Salmonella typhi* (bacterium); prevention: drink clean/boiled water, maintain hygiene.
- Q24. Nitrogen fixation is the conversion of atmospheric nitrogen into nitrogen compounds usable by plants. Rhizobium, living in root nodules of legumes, fixes this nitrogen, enriching the soil so farmers need less fertiliser.
- Q25. Communicable diseases spread from person to person (e.g. tuberculosis, common cold); non-communicable do not spread (e.g. diabetes, scurvy). Communicable diseases spread through air, water, food, contact or vectors (insects).

- Q26.** Wind insulated wire around an iron nail (core) and pass current from a cell — the nail becomes a magnet. Strength increases with (i) more turns of wire and (ii) larger current (also a soft-iron core).
- Q27.** Friction is the force that opposes relative motion between two surfaces in contact. Advantages: helps us walk, allows brakes/writing to work. Disadvantage: causes wear and tear / wastes energy as heat (any).
- Q28.** The sun heats land and water unevenly. Warm air over the hotter region rises, lowering pressure there; cooler air from high-pressure regions rushes in to take its place — this moving air is wind.
- Q29.** Move to a safe, strong building; keep emergency food, water, torch and medicines ready; do not go outside/near the shore; listen to official warnings; switch off electricity/gas (any three).
- Q30.** (i) Matter is made of tiny particles. (ii) The particles have spaces between them. (iii) They are continuously moving. (iv) They attract one another (any three).

SECTION D

Answers

- Q31.** (a) Bacteria (e.g. Lactobacillus), Fungi (e.g. yeast/bread mould), Protozoa (e.g. Amoeba), Algae (e.g. Spirogyra); viruses are also microscopic. (b) They spoil food, and cause diseases in humans, animals and plants (any two).
- Q32.** (a) A balanced diet contains all nutrients — carbohydrates, proteins, fats, vitamins, minerals — plus roughage and water in the right amounts. (b) Carbohydrates: energy; Proteins: growth/repair; Fats: energy store; Vitamins/Minerals: protection and proper functioning. (c) Dispose of waste properly / keep water sources clean (any one).
- Q33.** (a) Heating effect: current heats a wire — used in an electric heater/iron. Magnetic effect: current produces a magnetic field — used in an electric bell. (b) An electromagnet is a temporary magnet made by passing current through a coil around an iron core; uses: in electric bells, cranes to lift iron, loudspeakers (any two).
- Q34.** (a) Pressure is the force acting per unit area: $\text{Pressure} = \frac{\text{Force}}{\text{Area}}$. (b) $P = \frac{1002}{1} = 1002 \text{ Pa (N/m}^2\text{)}$. (c) A sharp knife has a very small edge area, so the same force gives a much larger pressure, cutting more easily.

SECTION E

Answers

- Q35.** (i) Anemometer. (ii) Low pressure. (iii) Move to a safe building; keep emergency supplies ready; avoid the shore; follow official warnings (any two). (iv) The India Meteorological Department (IMD).
- Q36.** (i) The magnetic effect of electric current. (ii) Increase the number of turns of wire (or increase the current). (iii) Used in electric bells / cranes to lift heavy iron / loudspeakers (any one). (iv) It loses its magnetism and can no longer attract the iron pins.