

BHARTIYA SHIKSHA BOARD

Model Paper – Half Yearly

Science - Class 8

Session 2026-27

Time: 3 Hours

Max Marks: 80

GENERAL INSTRUCTIONS:

- Read the questions carefully.
 - Please check that this question paper contains 8 printed pages.
 - 10 minutes of extra time have been allotted to read this question paper. During this time, students will not start writing the answers.
 - This question paper contains seven sections: Section A, Section B, Section C, Section D, Section E, Section F, Section G.
 - Attempting all the questions is compulsory.
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SECTION A

MCQ (only one option is correct) (1 mark each × 12 = 12 Marks)

1. When an acid reacts with a base, the products formed are

- a. Salt and oxygen
- b. Salt and water
- c. Water and hydrogen
- d. Salt only

Instructions for Questions Based on Assertion and Reason

Question no 2 and 3 consists of two statements—Assertion (A) and Reason (R). Read both statements carefully and choose the most appropriate answer from the options given.

Select:

- a. If both Assertion and Reason are true, and Reason is the correct explanation of the Assertion.
- b. If both Assertion and Reason are true, but Reason is not the correct explanation of the Assertion.
- c. If Assertion is true, but Reason is false.
- d. If Assertion is false, but Reason is true.
- e. Both Assertion and Reason are false.

2. Assertion (A): Farmers often add lime to acidic soil before growing crops.
Reason (R): Lime neutralises the excess acid present in the soil and helps improve soil conditions for plant growth.
- i) A and R both are true, and R is the correct explanation of A
 - ii) A and R both are true, but R is not the correct explanation of A
 - iii) A is true, but R is false
 - iv) A is false, but R is true
 - v) Both A and R are false
3. Assertion: A nearby lake is showing Eutrophication
Reason: Nitrogenous fertilizers are being washed into the lake
- a. A and R both are true, and R is the correct explanation of A
 - b. A and R both 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
 - e. Both A and R are false
4. Why do stars appear to move across the sky?
- a. Stars revolve around Earth.
 - b. Earth rotates on its axis.
 - c. The Moon pulls the stars.
 - d. Clouds move the stars.
5. A student walks 100 m east and then 100 m west, taking 200 seconds. What is the average velocity?
- a. 1 m/s east
 - b. 0.5 m/s west
 - c. Zero
 - d. 1 m/s west
6. An object moving with constant velocity has
- a. increasing acceleration
 - b. zero acceleration
 - c. decreasing speed
 - d. changing direction
7. What keeps our skin healthy and soft?
- a. Sanitizer
 - b. Microorganisms
 - c. Soap
 - d. Perfume

7. Which of the following are primary producers of food?
- a. Cyanobacteria
 - b. Virus
 - c. Protozoa
 - d. Fungi
8. Which of the following is a prokaryote?
- a. Fungi
 - b. Archaea
 - c. Algae
 - d. Amoeba
9. Which of the following does not form the organic matter composition of soil?
- a. Dead leaves
 - b. Microorganisms
 - c. Earthworms
 - d. Rocks
10. Which of the following negatively affects human health over time?
- a. Monoculture
 - b. Leguminous plants
 - c. Use of green manure
 - d. Crop rotation
11. Which of the following is a biopesticide ?
- a. Cow dung
 - b. DDT
 - c. Neem oil
 - d. Aldrin

SECTION B

Choose the correct option (more than one option is correct) 1 Mark each

13. Which statements about indicators are correct?
- i. Indicators help identify acids and bases.
 - ii. Different indicators may show different colour changes.
 - iii. Turmeric turns reddish-brown in a basic solution.
 - iv. Distilled water is an indicator.

14. Which properties make synthetic fibers suitable for sportswear?
- Dry quickly
 - Lightweight
 - Absorb large amounts of water
 - Durable
15. Which statements about natural fibers are correct?
- They are obtained from plants or animals.
 - Cotton is a plant fibre.
 - Nylon is a natural fibre.
 - Wool is obtained from animals.
16. Which statements correctly explain why the Sun and Moon appear nearly the same size?
- The Sun is much larger than the Moon.
 - The Sun is much farther away from Earth.
 - The Moon produces its own light.
 - Their ratio of size and distance is approximately the same.
17. Which statements about Ohm's Law are correct?
- Current increases when voltage increases (keeping resistance constant).
 - Current decreases when resistance increases.
 - Resistance depends only on voltage.
 - Voltage is directly proportional to current if resistance remains constant.

SECTION C

Fill in the blank (1 mark each × 3 = 3 Marks)

18. Turmeric indicator turns _____ in a basic solution.
19. The interlacing of two sets of yarn to make fabric is known as _____.
20. The constellation used to locate the Pole Star is called the _____.

SECTION D

Very Short Answer Questions (2 mark each × 6 = 12 Marks)

21. A teacher placed a piece of magnesium ribbon and a piece of copper wire separately in dilute hydrochloric acid. Predict which metal will react more vigorously and explain your answer using the concept of reactivity. (2 marks)

22. A tailor accidentally used silk fabric instead of nylon to stitch a raincoat. Predict what problem the customer might face and explain your answer. (2 marks)

23. A spacecraft travels towards Mars at an average speed of 50,000 km/h. If Mars is 75 million km away from Earth during its closest approach, calculate approximately how many hours the spacecraft will take to reach Mars. (2 mark)

24. A wire has a resistance of $8\ \Omega$ and applied voltage 8 V. If the applied voltage is doubled while the resistance remains the same, calculate the new current. (2 mark)

25. What is fermentation? Give one example of how fermentation can be used? (2 mark)

26. Explain two outcomes of the Green Revolution. (2 mark)

SECTION E

Short Answer Questions (3 mark each $\times 7 = 21$ Marks)

27. Gold, copper and iron are metals, but gold is preferred for making jewelry, copper is preferred for making electrical wires whereas iron is preferred for constructing bridges. Explain the reasons based on their physical properties. (3 mark)

28. A student says, "Synthetic fibres are always better than natural fibres because they are stronger." Do you agree with this statement? Give three points to support your answer by comparing the advantages and disadvantages of both types of fibres. (3 mark)

29. Two students are observing the night sky.

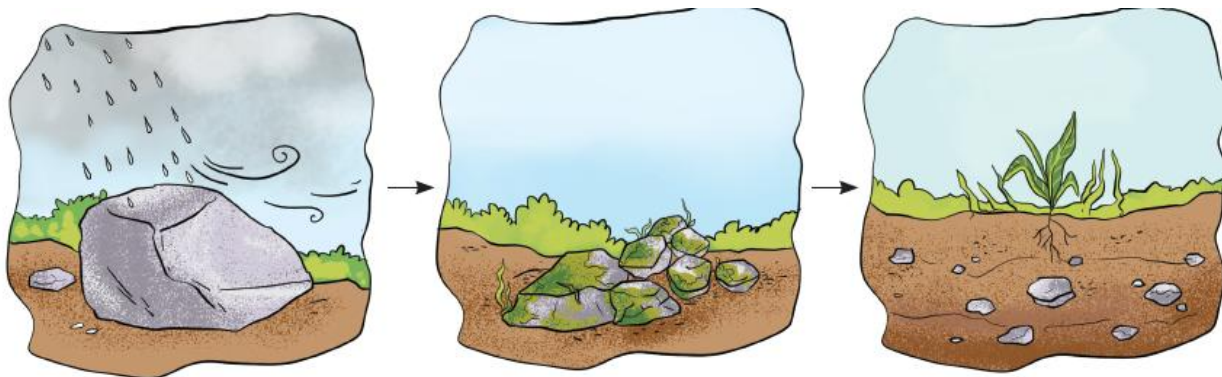
- Student A says that a bright object shining steadily throughout the night is a star.
- Student B says that if the object changes its position with respect to nearby stars over several nights, it is probably a planet.

Who is more likely to be correct? Give two reasons to justify your answer. (3 mark)

30. An LED bulb and a room heater are connected separately to the same voltage source. The heater coil becomes very hot, while the LED does not. Using the concept of resistance and electrical energy, explain why these devices behave differently. (3 mark)

31. A car is moving at a velocity of 8 m/s. It accelerates uniformly and reaches a velocity of 20 m/s in 6 seconds. Answer the following:

- a) Calculate the acceleration of the car. (2 mark)
- b) What does the calculated value of acceleration indicate about the motion of the car? (1 mark)



32.

- a. What is the process depicted in the picture called? (1 mark)
- b. Describe the process depicted in the above picture (2 mark)

33. Explain 3 methods of sustainable agricultural practices. (3 mark)

SECTION F

Case based/Activity Based Question (4 mark each $\times 3 = 12$ Marks)

34. Rohan complained of a burning sensation in his stomach after eating spicy food. His grandmother gave him an antacid. Later that day, while gardening, he was stung by a bee. His father prepared a paste of baking soda and applied it to the affected area. Rohan wondered how two different problems could be treated using similar scientific principles.

Answer the following questions:

- a) Why did the antacid help relieve the burning sensation in Rohan's stomach? (1 mark)
- b) Explain why baking soda is applied to a bee sting. (1 mark)
- c) What common scientific principle is involved in both situations? Explain it briefly. (2 mark)

35. During a practical activity, Aarav assembled a simple electric circuit on a breadboard using a battery, switch, bulb, ammeter and voltmeter. After switching on the circuit, the bulb did not glow. The teacher observed the following:
- The switch was not making proper contact.
 - One connecting wire was loose.
 - The battery was connected correctly but had very little charge.

Answer the following:

- a. Which component is used to measure the flow of electric current in the circuit?
(1 mark)
 - b. What should Aarav check first if the bulb does not glow? Give one reason.
(1 mark)
 - c. Why is a breadboard useful while testing an electric circuit?
(1 mark)
 - d. State one possible reason, other than a loose wire, why the bulb may not glow.
(1 mark)
36. It rained heavily one day. The next day, Vibha went to a nearby garden which was divided in half by a large rectangular fountain. She observed that the soil on the right side of the garden had drained and the soil had almost completely dried up but there was a lot of water collected on the soil present on the left side of the garden. When she touched the soils, the left side soil felt sticky and smooth while the right side soil felt loose and grainy.
- a. What is the major difference in the composition of the soils present on the left and right sides of the garden?
(1 mark)
 - b. Where did the water on the right side go?
(2 mark)
 - c. Give one method of how the porosity of the soil on the left side can be improved?
(1 mark)

SECTION G

Long Answer Questions (5mark each × 3 = 15 Marks)

37. An iron gate kept outdoors develops a reddish-brown coating after the rainy season, while an aluminum window frame remains almost unchanged under the same conditions.

Answer the following:

- a) Explain why iron undergoes this change while aluminium is less affected?
(2 mark)

- b) How do air and water contribute to the change observed in iron? (2 mark)
- c) Suggest one practical method to protect iron objects from such damage and explain how it works? (1mark)

38. During a school sports activity, Anaya and her friend measured the distance covered by a runner. They noticed that the runner completed one lap of the circular track and returned to the same starting point. The total length of the track covered by the runner was 400 m.

Answer the following:

- (a) What is the distance travelled by the runner after completing one lap? (1 mark)
- (b) What is the displacement of the runner after completing one full lap? Give a reason. (2 marks)
- (c) What is the difference between distance and displacement? (2 marks)

Q39. Give five uses of microorganisms with one example each. (5 marks)