

Mindbenz Olympiad of Science (MOS)

Sample Paper

Class - 8

Maximum Marks: 60

Time Allowed – 55 Minutes

Section: A Concept Check (10 Questions × 1 mark = 10 marks)

1. Which of the following processes increases the porosity of soil?

- A. Irrigation
- B. Ploughing
- C. Harvesting
- D. Threshing



2. Vaccines are ineffective against:

- A. Bacterial infections
- B. Viral infection
- C. Protozoal infections
- D. Fungal infections



3. A fuel burns with an efficiency of 40% and releases 1000 J energy. How much of this energy is effectively used?

- A. 400 J
- B. 600 J
- C. 1000 J
- D. 1400 J

4. A female frog lays 2000 eggs. If only 5% survive to adulthood, how many adult frogs are expected if all necessary conditions were taken care?

- A. 50
- B. 200
- C. 100
- D. 150

5. Assertion (A): Deforestation leads to increased soil erosion.

Reason (R): Trees bind the soil with their roots.

- 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.

6. If a forest covers 2400 hectares and 15% gets deforested annually, how much area

remains after 2 years (approx)?

- A. 2040 ha
- B. 1734 ha
- C. 1800 ha
- D. 2100 ha

7. Assertion (A): Petroleum is separated into various components through fractional distillation.

Reason (R): Each component has a different boiling point.

- 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.

8. The pitch of sound depends on:

- A. Amplitude
- B. Frequency
- C. Speed
- D. Wavelength

9. Which charge is acquired by glass rod when rubbed with silk?

- A. Negative
- B. Neutral
- C. Positive
- D. Depends on conditions

10. The organelle responsible for the production of energy inside cells is:

- A. Nucleus
- B. Mitochondria
- C. Golgi apparatus
- D. Ribosome

Section: B Application Zone (10 Questions × 1 mark = 10 marks)

11. Two blocks of identical shape but different masses are pushed with the same force on a smooth surface. Which will travel further in the same time?

- A. The heavier block
- B. The lighter block
- C. Both equally
- D. Depends on volume

12. Oil is spilled on a marble floor. What will be the most noticeable effect?

- A. Friction will increase

- B. Friction will remain the same
- C. Friction will decrease
- D. Object speed will decrease

13. If the speed of sound in air is 330 m/s, how long will it take for sound to travel 1650 meters in the same medium?

- A. 5 sec
- B. 0.2 sec
- C. 2 sec
- D. 10 sec

14. A farmer uses a seed drill instead of broadcasting seeds. What advantage does it offer?

- A. Prevents water loss
- B. Reduces pest attacks
- C. Ensures uniform seed depth
- D. Enhances light absorption



15. A factory uses yeast fermentation to produce alcohol. From 500 kg sugar, it gets 200 L alcohol. How much alcohol will be produced from 750 kg?

- A. 250 L
- B. 300 L
- C. 350 L
- D. 400 L

16. CNG is considered a better fuel than petrol because it:

- A. Is heavier than air
- B. Is solid
- C. Produces less pollution
- D. Is more costly



17. If an object is 20 cm from a concave mirror and the image is 10 cm in front of the mirror, what is the focal length?

- A. 6.67 cm
- B. -10 cm
- C. -20 cm
- D. 5 cm

18. Assertion (A): Wildlife sanctuaries help in preserving biodiversity.

Reason (R): They protect endangered species in their natural habitat.

- 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

19. A mirror forms an image 10 cm behind it of an object placed 10 cm in front. What is the magnification?

- A. +1

- B. -1
- C. 0
- D. +2

20. A force of 300 N acts over an area of 2 m². What is the pressure?

- A. 100 Pa
- B. 150 Pa
- C. 300 Pa
- D. 600 Pa

Section: C: Higher Order Thinking (20 Questions × 2 marks = 40 marks)

21. A farmer applies excess water to his wheat field and notices wilting of plants. What is the most probable reason?

- A. Pest attack
- B. Oxygen deficiency in roots
- C. Nutrient excess
- D. Sunlight exposure

22. Why is yeast preferred in bread-making over other microbes?

- A. It produces lactic acid
- B. It is anaerobic and generates ethanol
- C. It respire aerobically and produces CO₂
- D. It improves color of bread

23. If 500 mL of alcohol is burnt releasing 800 kJ of energy, what is the energy released per mL?

- A. 1.6 kJ/mL
- B. 0.62 kJ/mL
- C. 2.5 kJ/mL
- D. 1.2 kJ/mL

24. What is the primary function of the placenta?

- A. Help in egg formation
- B. Connect embryo to uterus for nutrient and gas exchange
- C. Form amniotic fluid
- D. Secrete digestive enzymes

25. Which hormone controls metamorphosis (developmental changes) in humans?

- A. Insulin
- B. Adrenaline
- C. Thyroxine
- D. Estrogen

26. A box exerts 300 N force over an area of 0.5 m^2 . Calculate the pressure.

- A. 150 Pa
- B. 600 Pa
- C. 300 Pa
- D. 100 Pa

27. Car tires have treads because:

- A. It reduces wear
- B. It increases rolling friction for better grip
- C. It decorates the tire
- D. It reduces air resistance



28. A sound wave travels at 340 m/s . How long will it take to reach a listener 1700 m away?

- A. 3 s
- B. 5 s
- C. 6 s
- D. 4 s

29. If 0.5 A current flows through water for 10 minutes, how much charge has passed?

- A. 300 C
- B. 600 C
- C. 150 C
- D. 30 C

30. Lightning strikes with energy of 10^6 J . If this energy is used to lift a 50 kg object, how high can it be lifted? ($g = 10 \text{ m/s}^2$)

- A. 1000 m
- B. 2000 m
- C. 500 m
- D. 10,000 m

31. Which gland controls the release of hormones from other endocrine glands?

- A. Pancreas
- B. Thyroid
- C. Pituitary
- D. Adrenal

32. A block of wood floats on water but sinks in alcohol. Why?

- A. Alcohol is denser than wood
- B. Wood is lighter than water but denser than alcohol
- C. Alcohol exerts more upthrust
- D. Water is less dense than alcohol

33. When electric current is passed through copper sulphate solution using copper electrodes, what happens?

- A. Copper is deposited on the cathode

- B. Oxygen is released
- C. The solution freezes
- D. The bulb fuses

34. In a periscope using plane mirrors, light is bent:

- A. By 90° twice
- B. By 45° once
- C. By 180°
- D. Not at all

35. Ultrasonic waves are used in sonar because:

- A. They travel fast in air
- B. They are inaudible
- C. They reflect well off underwater objects
- D. They cause no disturbance

36. A farmer adds blue-green algae to his paddy field. This helps in:

- A. Improving grain color
- B. Nitrogen fixation in the soil
- C. Increasing temperature
- D. Killing pests

37. In a concave mirror, when the object is placed between the pole and focus, the image is:

- A. Real and inverted
- B. Virtual and erect
- C. No image formed
- D. Real and erect

38. A student makes an electromagnet by winding 500 turns of copper wire around a soft iron rod and connects it to a 3 V battery. If the current is 0.6 A and the resistance of the wire is 4.5 ohms, which of the following changes will increase the strength of the electromagnet most effectively?

- A. Increase the number of turns to 700, keep voltage constant
- B. Decrease the resistance of the wire to 2.5 ohms, keep voltage constant
- C. Add more batteries to make voltage 6 V, but reduce the number of turns
- D. Use an aluminum core instead of iron

39. Why does kerosene burn with a yellow flame in a lamp?

- A. High air supply
- B. Incomplete combustion due to limited oxygen
- C. It is a metal-based fuel
- D. It contains salt

40. Why does a camel walk easily on sand but a woman in high heels sinks?

- A. Camels are lighter
- B. Heels increase pressure due to smaller area
- C. Sand is slippery
- D. Woman walks faster

Answer key

- 1.B
 - 2.C
 - 3.A
 - 4.C
 - 5.A
 - 6.B
 - 7.A
 - 8.B
 - 9.C
 - 10.B
 - 11.B
 - 12.C
 - 13.A
 - 14.C
 - 15.B
 - 16.C
 - 17.A
 - 18.A
 - 19.A
 - 20.B
 - 21.B
 - 22.C
 - 23.A
 - 24.B
 - 25.C
 - 26.B
 - 27.B
 - 28.B
 - 29.A
 - 30.B
 - 31.C
 - 32.B
 - 33.A
 - 34.A
 - 35.C
 - 36.B
 - 37.B
 - 38.B
 - 39.B
 - 40.B
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