

Mindbenz Olympiad of Science (MOS)

Sample Paper

Class - 5

Maximum Marks: 40

Time Allowed – 45 Minutes

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

- 1. A toy robot moves and makes sounds. Why is it still considered non-living?**
 - a. It does not need electricity
 - b. It cannot grow or reproduce
 - c. It breathes air
 - d. It eats food like animals
- 2. Woolen clothes are mostly worn in winter because:**
 - a. They are colorful
 - b. They keep the body cool
 - c. They absorb moisture
 - d. They trap body heat
- 3. Why do camels have long eyelashes?**
 - a. To make them look pretty
 - b. To see in the dark
 - c. To protect eyes from sand
 - d. To store water
- 4. The skeleton in our body helps us to:**
 - a. Breathe
 - b. Circulate blood
 - c. Digest food
 - d. Give shape and support
- 5. Which part of the plant anchors it to the soil and absorbs water and nutrients?**
 - a. Stem
 - b. Root
 - c. Leaf
 - d. Flower
- 6. A plant bends toward sunlight because it:**
 - a. Is afraid of darkness
 - b. Wants to grow faster

- c. Responds to stimuli
 - d. Needs to sleep
 - 7. **A child eating only junk food may suffer from:**
 - a. Good health
 - b. Strong bones
 - c. Balanced diet
 - d. Obesity and weakness
 - 8. **Animals like bats are different from most mammals because they:**
 - a. Lay eggs
 - b. Can fly
 - c. Eat only insects
 - d. Live in water
 - 9. **Which sense organ helps us to maintain balance?**
 - a. Nose
 - b. Tongue
 - c. Ear
 - d. Eye
 - 10. **Which type of plant grows from a bulb?**
 - a. Sunflower
 - b. Tulip
 - c. Fern
 - d. Cactus
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Section: B Application Zone (10 Questions × 1 mark = 10 marks)

11. **Assertion (A):** The Ganga River is considered a national heritage of India.
Reasoning (R): The Ganga has cultural, religious, and ecological significance for the people of India.
Options:
 - a. Both Assertion (A) and Reason (R) are true, and Reason (R) correctly explains Assertion (A).
 - b. Both Assertion (A) and Reason (R) are true, but Reason (R) does not explain Assertion (A).
 - c. Assertion (A) is true, but Reason (R) is false.
 - d. Assertion (A) is false, but Reason (R) is true
12. **Which human activity increases the risk of landslides in hilly areas?**
 - a. Plantation of trees
 - b. Terrace farming

- c. Road construction and deforestation
 - d. Building rainwater harvesting pits
- 13. Why are copper vessels used in cooking in ancient India?**
- a. They are light
 - b. They have high resistance
 - c. They conduct heat well and kill microbes
 - d. They change food color
- 14. A magnet attracts iron nails but not plastic ones. This is because:**
- a. Plastic is too heavy
 - b. Iron is lighter
 - c. Magnetism affects only magnetic materials
 - d. Plastic has electricity
- 15. Assertion (A):** Solar panels work better on sunny days.
Reason (R): They convert solar energy into electrical energy using sunlight.
- a. Both Assertion (A) and Reason (R) are true, and Reason (R) correctly explains Assertion (A).
 - b. Both Assertion (A) and Reason (R) are true, but Reason (R) does not explain Assertion (A).
 - c. Assertion (A) is true, but Reason (R) is false.
 - d. Assertion (A) is false, but Reason (R) is true
- 16. Which of the following is the most sustainable method of producing energy in India?**
- a. Burning of fossil fuels
 - b. Biomass energy
 - c. Wind energy
 - d. Nuclear energy
- 17. Which of the following is an effect of the ozone layer depletion?**
- a. Global warming
 - b. Increased skin cancer rates
 - c. Stronger storms
 - d. Increased agricultural production
- 18. A person jumps off a diving board into the water. What happens to their potential energy?**
- a. It increases when they hit the water
 - b. It decreases as they fall
 - c. It stays the same
 - d. It is converted into chemical energy
- 19. Match the energy types in Column A with their examples in Column B. Choose the correct option.**

Column A (Energy Type)

1. Kinetic Energy
2. Gravitational Potential Energy
3. Thermal Energy
4. Chemical Energy

Column B (Example)

- a) Water flowing through a dam
- b) A rock at the edge of a cliff
- c) Heat from a fireplace
- d) Energy stored in food

- a. 1 - a, 2 - b, 3 - c, 4 - d
- b. 1 - b, 2 - a, 3 - d, 4 - c
- c. 1 - d, 2 - c, 3 - b, 4 - a
- d. 1 - a, 2 - b, 3 - d, 4 - c

20. Match the materials in Column A with their properties in Column B. Choose the correct option.

Column A (Energy Type)

1. Steel
2. Rubber
3. Glass
4. Wood

Column B (Example)

- a) Strong and durable
- b) Elastic and flexible
- c) Transparent and brittle
- d) Natural and used in construction

- a. 1 - a, 2 - b, 3 - c, 4 - d
- b. 1 - d, 2 - c, 3 - b, 4 - a
- c. 1 - c, 2 - a, 3 - d, 4 - b
- d. 1 - b, 2 - d, 3 - a, 4 - c

Section: C: Higher Order Thinking (10 Questions × 2 marks = 20 marks)

21. A pendulum swings from one extreme to the other. At which point is the total mechanical energy (potential + kinetic) of the system the greatest?

- a. At the highest point on either side
- b. At the lowest point
- c. At the middle point, moving downward
- d. The total mechanical energy remains constant throughout the swing.

- 22. A solid metal is heated in a lab. As the temperature increases, the metal expands. Which of the following best describes the cause of this expansion?**
- a. The atoms and molecules of the metal move slower
 - b. The atoms and molecules of the metal move faster and take up more space.
 - c. The mass of the metal increases as it gets hotter.
 - d. The metal changes its state from solid to liquid.
- 23. How does deforestation contribute to the intensification of natural calamities such as floods and landslides?**
- a. Deforestation reduces the amount of rainwater absorbed by trees, increasing runoff.
 - b. Deforestation prevents the wind from carrying away water vapor.
 - c. Deforestation causes a decrease in rainfall, leading to droughts.
 - d. Deforestation causes the Earth's temperature to rise significantly.
- 24. How does regular physical exercise improve the efficiency of the human circulatory system?**
- a. It increases the heart rate but decreases blood flow to muscles.
 - b. It strengthens the heart, allowing it to pump blood more effectively.
 - c. It reduces the amount of oxygen in the blood.
 - d. It weakens the blood vessels, making the heart work harder.
- 25. How can India balance economic development with environmental sustainability?**
- a. By using non-renewable resources exclusively for industrial growth.
 - b. By focusing on large-scale urbanization and deforestation.
 - c. By adopting renewable energy sources and sustainable farming practices.
 - d. By reducing the focus on education and research in environmental science.
- 26. A car engine runs on fuel and generates energy. Which of the following is the correct sequence of energy transformations in the engine?**
- a. Chemical → Heat → Mechanical
 - b. Mechanical → Chemical → Heat
 - c. Electrical → Chemical → Mechanical
 - d. Heat → Chemical → Electrical
- 27. If a piece of iron is heated to a high temperature and then rapidly cooled, what is the change that occurs in the material?**
- a. The iron becomes more flexible.
 - b. The iron's magnetic properties are enhanced.
 - c. The iron becomes more brittle.
 - d. The iron becomes less dense.
- 28. Which of the following actions would most effectively reduce the impact of global warming caused by excessive greenhouse gases?**

- a. Increasing the use of coal for energy production
- b. Planting more trees to absorb carbon dioxide
- c. Decreasing the amount of sunlight reaching Earth
- d. Encouraging the use of air conditioners to cool the environment

29. How does exercise improve the efficiency of the respiratory system?

- a. By increasing the amount of oxygen that the lungs can absorb during each breath
- b. By reducing the body's need for oxygen
- c. By slowing down the breathing rate during activity
- d. By removing more carbon dioxide from the body without increasing oxygen intake

30. Which of the following methods is most effective in conserving natural resources like water and soil in agricultural practices?

- a. Monocropping and using high amounts of chemical fertilizers
- b. Over-extraction of groundwater for irrigation
- c. Practicing crop rotation and using organic farming methods
- d. Expanding the area of agricultural land by clearing forests

ANSWER KEY

1. b	11.a	21.d
2.d	12.c	22.b
3.c	13.c	23.a
4.d	14.c	24.b
5.b	15.a	25.c
6.c	16.c	26.a
7.d	17.b	27.c
8.b	18.b	28.b
9.c	19.a	29.a
10.b	20.a	30.c
