



Minervaa International Scholarship Examinations

Sample Question Paper

Class- 8

Subject- Science



LOGICAL REASONING

- Find the missing number:
1, 4, 9, 16, 25, 36, ?, 64
a) 42 b) 45 c) 49 d) 54
- If $\oplus$ means multiplication, $\ominus$ means subtraction, and $\otimes$ means addition, then what is the value of:
 $5 \oplus 4 \ominus 3 \otimes 2 = ?$
a) 17 b) 19 c) 21 d) 23
- A is older than B. C is younger than A but older than B. D is the youngest. Who is second oldest?
a) A b) C c) B d) D
- A word is coded by adding 3 to each letter's alphabetical position, then converting it back to letters. For example, CAT $\rightarrow$ FDX. What is the code for BAG?
a) EDJ b) EDK c) EAJ d) DAJ
- In an organization of pollution control board, engineers are represented by a circle, legal experts by a square and environmentalist by a triangle. Who is most represented in the board as shown in the following figure?



- Environmentalists
- Legal Experts
- Engineers with legal background
- Environmentalists with Engineering background

SCIENCE

6. How many of the following are examples of non-contact forces?

- 1) Magnetic force
- 2) Friction
- 3) Gravitational force
- 4) Electrostatic force

a) 1 b) 2 c) 3 d) 4

7. Which option correctly explains transformation of energy in a hydropower plant?

- a) Chemical → Mechanical → Electrical
- b) Potential → Kinetic → Electrical
- c) Electrical → Mechanical → Heat
- d) Kinetic → Potential → Electrical

8. Which of the following is *not* a method of asexual reproduction in plants?

- a) Budding
- b) Fragmentation
- c) Pollination
- d) Spore formation

9. True or False with Reasoning:

Statement: A person wearing high heels exerts less pressure on the ground than when wearing flat shoes.

- a) True, because pressure depends on mass only.
- b) False, because smaller area increases pressure.
- c) False, because larger area increases pressure.
- d) True, because force increases in heels.

10. Riya pushes a box with 20 N of force across the floor, but it doesn't move. What can be inferred?

- a) The box is too light.
- b) Friction is more than 20 N.
- c) There's no friction.
- d) Force and friction are balanced.

11. A farmer crosses two plants and gets seeds. What process has taken place?

- a) Asexual reproduction
- b) Pollination
- c) Fertilization
- d) Germination

12. The density of a material is defined as its mass per unit volume. Consider the following statements about the density of materials:
1. If the mass of the material increases while the volume stays the same, the density will increase.
 2. If the volume of the material increases while the mass stays the same, the density will increase.
 3. A denser material will always sink in water.
 4. The density of gas is higher than that of liquids and solids.

How many of the above statements are correct?

- a) 1 b) 2 c) 3 d) 4

13. A cube of side 2 cm is made of a material with a density of 5g/cm^3 . Calculate the mass of the cube.

- a) 40 g b) 50 g c) 100 g d) 80 g

14. Match the physical quantities with their SI units:

Physical Quantity SI Unit

- | | |
|-------------|----------------------------|
| 1. Force | A. m^2/s^2 |
| 2. Pressure | B. N (Newton) |
| 3. Energy | C. Pascal (Pa) |
| 4. Power | D. J(Joule) |

Options:

- a) 1-B, 2-C, 3-D, 4-A
- b) 1-B, 2-D, 3-C, 4-A
- c) 1-C, 2-A, 3-B, 4-D
- d) 1-A, 2-B, 3-D, 4-C

15. What is the formula for calculating the electric power in a circuit ?

- a) $P = V \times I$
- b) $P = I^2 \times R$
- c) $P = R \times V$
- d) Both A and B

16. You have two metal rods, one made of copper and the other made of iron. Both rods are heated at the same temperature. Which rod will conduct heat faster, and why?

- a) Copper rod will conduct heat faster because copper is a better conductor of heat than iron.
- b) Iron rod will conduct heat faster because iron conducts heat better than copper.
- c) Both will conduct heat equally.
- d) The temperature does not affect the rate of heat conduction.

17. What type of heat transfer occurs when a spoon heats up after being placed in a hot cup of tea?
- a) Convection b) Radiation
c) Conduction d) Evaporation
18. A 60 W bulb is connected to a 12 V battery. What is the current drawn by the bulb?
- a) 0.5 A b) 5 A c) 6 A d) 0.75 A
19. A ray of light strikes a plane mirror at an angle of 45° . What is the angle between the reflected ray and the normal?
- a) 45° b) 90° c) 135° d) 0°
20. Which of the following correctly shows the sequence of reproduction?
- a) Fertilization $\rightarrow$ Gamete $\rightarrow$ Zygote
b) Gamete $\rightarrow$ Zygote $\rightarrow$ Fertilization
c) Gamete $\rightarrow$ Fertilization $\rightarrow$ Zygote
d) Zygote $\rightarrow$ Gamete $\rightarrow$ Fertilization
21. Match the following statements to their respective effects on sound waves:
- | Statement | Effect |
|-----------------------------------|-----------------|
| 1. High frequency sound | A. High pitch |
| 2. Low frequency sound | B. Low pitch |
| 3. Increase in amplitude of sound | C. Louder sound |
| 4. Decrease in amplitude of sound | D. Softer sound |
- a) 1-A, 2-B, 3-C, 4-D
b) 1-B, 2-A, 3-D, 4-C
c) 1-C, 2-D, 3-B, 4-A
d) 1-A, 2-C, 3-D, 4-B
22. You have a concave mirror and a convex mirror, and both are used to form an image of the same object. Which mirror will produce a smaller image?
- a) Concave mirror
b) Convex mirror
c) Both mirrors produce the same size image
d) It depends on the object's distance from the mirror
23. You sprinkle iron filings near a bar magnet. What pattern do they form around the magnet?
- a) Straight lines perpendicular to the magnet
b) Circular loops centered at one pole
c) Curved lines from one pole to the other
d) Random scattered dots

24. Match the following materials with their magnetic properties:

Material	Magnetic Behaviour
1. Iron	A. Weakly attracted
2. Plastic	B. Not attracted
3. Copper	C. Strongly attracted
4. Aluminum	D. Slightly magnetic

a) 1-C, 2-B, 3-C, 4-A

b) 1-C, 2-B, 3-D, 4-A

c) 1-A, 2-B, 3-D, 4-C

d) 1-D, 2-C, 3-B, 4-A

25. If you double the weight of an object being dragged across a floor, what happens to the frictional force?

a) Doubles

b) Halves

c) Remains the same

d) Becomes zero

26. Which gas is mainly responsible for acid rain?

a) Oxygen

b) Nitrogen

c) Carbon monoxide

d) Sulphur dioxide

27. How many are correct?

1. Carbon monoxide is harmful to humans

2. Boiling kills most bacteria in water

3. Burning plastic is safe for the environment

4. Plants help reduce air pollution

a) 1

b) 2

c) 3

d) 4

28. True/False with reasoning:

“Water pollution only affects aquatic life.”

a) True, because it only stays in rivers

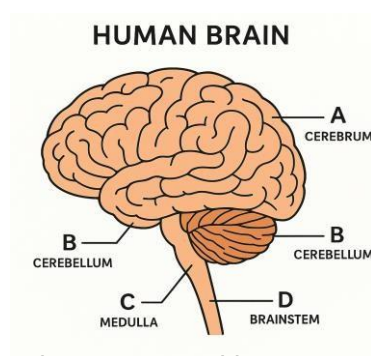
b) False, because humans consume polluted water too

c) True, because fish are most vulnerable

d) False, because it evaporates into the air

29. Observe the diagram below showing different parts of the human brain.

Which labelled part represents the largest region responsible for thinking and memory?



a) A

b) B

c) C

d) D

30. A factory discharges untreated waste into a river every day. Over a week, the fish population drops drastically. What's the likely reason?

- a) More fishermen
- b) Lack of algae
- c) Decrease in oxygen due to pollutants
- d) Fish migrated to sea

31. Which of the following is *not* a communicable disease?

- a) Malaria
- b) Tuberculosis
- c) Diabetes
- d) COVID-19

32. Which of the following statements is correct about stars?

- a) All stars are the same size
- b) Stars do not emit their own light
- c) Stars appear to move because Earth rotates
- d) Stars are only seen during eclipses

33. Match the following:

Object	Feature
1. Venus	A. Red Planet
2. Mars	B. Brightest in sky
3. Saturn	C. Rings
4. Mercury	D. Closest to Sun

- a) 1-B, 2-A, 3-C, 4-D
- b) 1-A, 2-B, 3-D, 4-C
- c) 1-C, 2-B, 3-A, 4-D
- d) 1-B, 2-D, 3-C, 4-A

34. A shooting star is:

- a) A star falling from space
- b) A satellite losing orbit
- c) A meteor burning in Earth's atmosphere
- d) An exploding asteroid

35. How many are correct?

- 1. Boiling water is a physical change
- 2. Burning wood is a chemical change
- 3. Mixing salt in water is chemical
- 4. Digestion is a chemical change

36. Which of these is not a sign of chemical change?

- a) Change in temperature
- b) Formation of gas
- c) Change in state
- d) Colour change

37. When vinegar is added to baking soda, bubbles are seen. This indicates:

- a) A physical change
- b) Heat loss
- c) Gas formation = chemical change
- d) No reaction

38. "Tearing a leaf changes its chemical structure."

- a) True, because it's irreversible
- b) False, because no new substance is formed
- c) True, because of air exposure
- d) False, because it turns brown

39. Match the following:

Substance	Type
1. Sodium	A. Compound
2. Salt	B. Element
3. Air	C. Mixture
4. Carbon dioxide	D. Compound (gas)

- a) 1-B, 2-A, 3-C, 4-D
- b) 1-A, 2-B, 3-C, 4-B
- c) 1-B, 2-C, 3-A, 4-C
- d) 1-C, 2-A, 3-B, 4-C

40. "All compounds are made of molecules, but not all molecules are compounds."

- a) True, because some molecules are from same elements
- b) False, because all molecules are compounds
- c) True, because all molecules have 3 atoms
- d) False, because atoms are not in compounds

41. Ravi mixed iron filings with Sulphur. Then he heated the mixture. What did he get?

- a) A mixture of iron and Sulphur
- b) A compound called iron sulphide
- c) A solution
- d) Just Sulphur

42. How many are correct?

- 1. Electrons are negatively charged
- 2. Protons are heavier than electrons
- 3. Neutrons are found in the nucleus
- 4. Electrons are inside the nucleus

- a) 1
- b) 2
- c) 3
- d) 4

43. Which of the following is not part of the nucleus?

- a) Proton
- b) Neutron
- c) Electron
- d) Both A and B

44. "In an atom, the number of protons is equal to the number of electrons."

- a) True, because atoms are electrically neutral
- b) False, because electrons are heavier
- c) True, because of the nucleus
- d) False, because electrons are outside nucleus

45. An atom has 6 protons and 6 electrons. What is the element?

- a) Oxygen
- b) Nitrogen
- c) Carbon
- d) Hydrogen

46. How many are correct?

- 1. Carbon forms covalent bonds
- 2. Carbon compounds are mostly ionic
- 3. Diamond is a form of carbon
- 4. Graphite conducts electricity

- a) 1
- b) 2
- c) 3
- d) 4

47. Match the following carbon allotropes with properties:

Allotrope Property

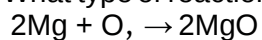
- 1. Diamond A. Good conductor
- 2. Graphite B. Hardest substance
- 3. Fullerene C. Spherical structure

- a) 1-B, 2-A, 3-C
- b) 1-A, 2-C, 3-B
- c) 1-C, 2-A, 3-B
- d) 1-B, 2-C, 3-A

48. What kind of bond is present in methane (CH₄)?

- a) Ionic
- b) Metallic
- c) Covalent
- d) Coordinate

49. What type of reaction is:



- a) Decomposition
- b) Combination
- c) Displacement
- d) Neutralization

50. How many are correct?

- 1. Rusting is a chemical reaction
- 2. Photosynthesis is a physical change
- 3. Respiration is an exothermic reaction
- 4. Baking a cake is a chemical change

- a) 1
- b) 2
- c) 3
- d) 4

1.c	2.b	3.b	4.a	5.d	6.c	7.b	8.c	9.b	10.b
11.c	12.a	13.a	14.a	15.d	16.a	17.c	18.b	19.a	20.c
21.a	22.b	23.c	24.b	25.a	26.d	27.c	28.b	29.a	30.c
31.c	32.c	33.a	34.c	35.c	36.c	37.c	38.b	39.a	40.a
41.b	42.c	43.c	44.a	45.c	46.c	47.a	48.c	49.b	50.c