



Minervaa International Scholarship Examinations

Sample Question Paper
Class- 9
Subject- Science



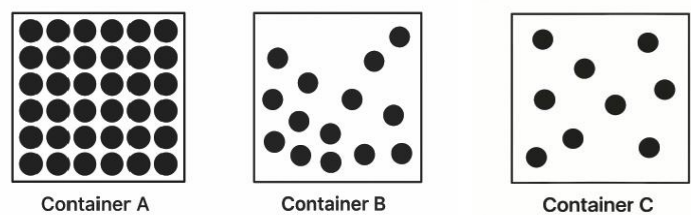
LOGICAL REASONING

1. If the reverse positional values (Z=1, Y=2...) are used, what is the code value of MATH ?
 - a) 70
 - b) 68
 - c) 72
 - d) None of these
2. If A=1, B=2..., then find the difference between the value of "SCIENCE" and "MATHS".
 - a) 3
 - b) 5
 - c) 4
 - d) 1
3. Rita walks 30 m towards North, turns left and walks 20 m, then turns left again and walks How far is she from the starting point?
 - a) 20 m
 - b) 30 m
 - c) 10 m
 - d) 50 m
4. Pointing to a girl, Raj said, "She is the daughter of the only son of my father." How is the girl related to Raj?
 - a) Niece
 - b) Daughter
 - c) Cousin
 - d) Sister
5. Arrange these processes logically:
 1. Mining
 2. Refining
 3. Melting
 4. Moulding
 5. Product Formation
 - a) 1, 2, 3, 4, 5
 - b) 1, 3, 2, 4, 5
 - c) 1, 2, 4, 3, 5
 - d) 2, 1, 3, 4, 5

SCIENCE

6. Riya accidentally spilled perfume in one corner of the classroom. Within minutes, the students at the other end also sensed the smell. Which two concepts best explain this observation?
 - a) Diffusion and kinetic energy of particles
 - b) Evaporation and surface tension
 - c) Condensation and latent heat
 - d) Compression and adhesion
7. In a desert survival situation, a person wraps a wet cloth around a bottle to cool the water inside. What scientific principle does this rely on?
 - a) Sublimation absorbs heat
 - b) Boiling causes cooling
 - c) Evaporation causes cooling
 - d) Condensation causes heating

8. A diagram shows three containers:



- Container A: tightly packed particles
- Container B: loosely packed, flowing particles
- Container C: free, widely spaced particles

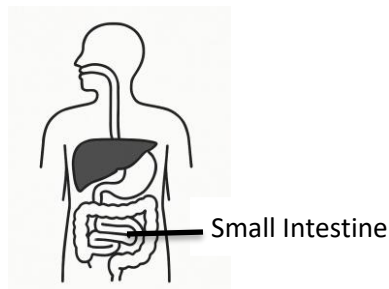
Which of the following correctly classifies them?

- a) A – Gas, B – Liquid, C – Solid
- b) A – Solid, B – Liquid, C – Gas
- c) A – Liquid, B – Gas, C – Solid
- d) A – Solid, B – Gas, C – Liquid

9. How many of the following show sublimation?

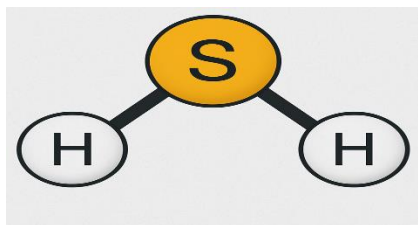
- 1. Camphor disappearing
 - 2. Ice melting
 - 3. Dry ice fuming
 - 4. Naphthalene balls shrinking
- a) One b) Two c) Three d) Four

10. In the diagram of the human digestive system, what is the role of the organ labelled organ?



- a) Absorption of nutrients
- b) Bile production
- c) Protein digestion
- d) Water absorption

11. The molecule shown is:



- a) Hydrogen Sulphate
 - b) Hydrogen Sulphide
 - c) Sulfuric acid
 - d) Ammonia
12. How many are correctly matched?
- (i) NaCl – 1 Na, 1 Cl
 - (ii) CO₂ – 2 Carbon, 1 Oxygen
 - (iii) NH₃ – 1 N, 3 H
 - (iv) CH₄ – 4 H, 1 C
- a) 1 b) 2 c) 3 d) All 4

13. A scientist has 18g of water. How many molecules of water does it contain?

- a) 6.022×10^{23}
 - b) 3.01×10^{23}
 - c) 12.04×10^{23}
 - d) 1 mole
14. Which of the following has the highest number of atoms?
- a) 1 mole of CO₂
 - b) 1 mole of O₂
 - c) 1 mole of H₂O
 - d) 1 mole of C₆H₁₂O₆

15. A person cannot respond quickly to stimuli. Which system is likely malfunctioning?

- a) Digestive
- b) Nervous
- c) Excretory
- d) Skeletal

16. True or False with Reasoning:

"All elements exist as atoms, and all compounds exist as molecules."

- a) True – always valid
- b) False – Some elements are diatomic
- c) True – That's the definition
- d) False – Compounds can be atoms too

17. An unknown element X is placed in Group 17 and Period 3 of the Modern Periodic Table. Which of the following is most likely true about X?

- a) It is a highly reactive metal
- b) It forms an oxide that is basic in nature
- c) It is a halogen and forms acidic oxides
- d) It is a noble gas with full valence shell

18. What is common among Li, Na, and K in terms of their atomic structure?

- a) All have two valence electrons
- b) All have same number of neutrons
- c) All have one valence electron
- d) All belong to same period

19. Given a periodic table with positions A, B, and C marked, where:

- 1. A is Group 1, Period 2
- 2. B is Group 17, Period 2
- 3. C is Group 18, Period 2

Which of the following correctly matches A, B, and C with their element names?

- a) A – Lithium, B – Fluorine, C – Neon
- b) A – Sodium, B – Bromine, C – Argon
- c) A – Hydrogen, B – Chlorine, C – Krypton
- d) A – Lithium, B – Neon, C – Fluorine

20. Which of the following statements is true regarding modern periodic law?

- a) Properties of elements are periodic functions of their atomic masses
- b) Properties of elements are periodic functions of their atomic numbers
- c) Properties of elements change randomly across periods
- d) Mendeleev proposed modern periodic law

21. Two atoms share electrons to attain stability. Which of the following is true about the bond formed?

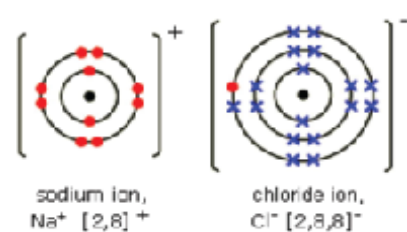
- a) It's an ionic bond
- b) It's a metallic bond
- c) It's a covalent bond
- d) It's a hydrogen bond

22. How many of the following are saturated hydrocarbons?

- i Ethene
- ii Ethyne
- iii Propane
- iv Butane

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

23. Diagram-based



What type of bond is shown in the diagram?

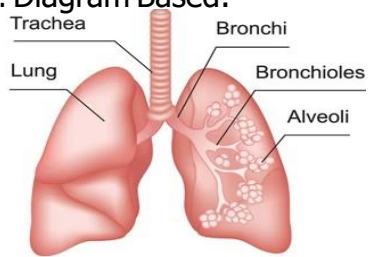
- a) Covalent
- b) Ionic
- c) Metallic
- d) Hydrogen

24. Rahul dissolves table salt (NaCl) in water and observes that the solution conducts electricity. Which property of NaCl explains this behaviour?

- a) It forms covalent bonds
- b) It contains ions that move freely in solution
- c) It acts as a reducing agent
- d) It is insoluble in water

25. A village had an outbreak of a disease that spread through contaminated water. Most people had diarrhoea and dehydration. What is the likely cause?
- a) Malaria b) Typhoid
c) Cholera d) Tuberculosis

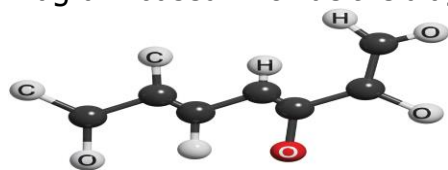
26. Diagram Based:



- A. Trachea
B. Alveoli
C. Bronchi
D. Bronchioles

The exchange of gases takes place in the:

- a) A b) B c) C d) D
27. Diagram-based: Provide the diagram of a structural formula shows a molecule with the arrangement:



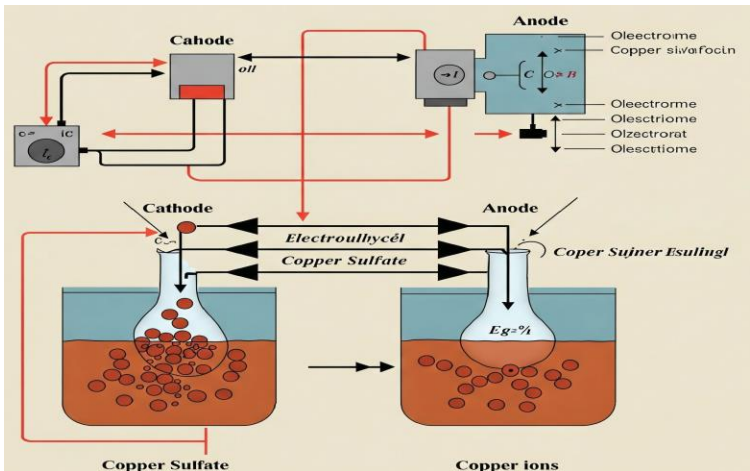
This is an example of:

- a) Alkene b) Alcohol c) Ether d) Aldehyde

28. Diagram-based:

The electrolyte used is:

- a) NaCl b) CuSO₄ solution
c) HCl d) Distilled water



29. How many of these are fungal uses?

1. Alcohol production
2. Bread making
3. Penicillin
4. Nitrogen fixation**

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

30. Sneha performs electrolysis of water using acidified water. Which gases will she collect at the electrodes?

- a) Hydrogen at both
b) Oxygen at cathode, hydrogen at anode
c) Hydrogen at cathode, oxygen at anode
d) Oxygen at both

31. How many are correct about electrolysis?

1. It uses electric current
2. Oxidation occurs at the cathode
3. Reduction occurs at the anode
4. Electrolytes must have free ions

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

32. Match the following:

Compound Use

- 1. NaHCO_3 A. Preservative
- 2. CaCO_3 B. Antacid
- 3. NaCl C. Chalk

Options:

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

33. Arjun tests a solution and finds it turns red litmus blue and has a pH of 9. It is most likely:

- a) A strong acid
- b) A weak acid
- c) A weak base
- d) A neutral solution

34. Which is the correct word equation for the decomposition of calcium carbonate?

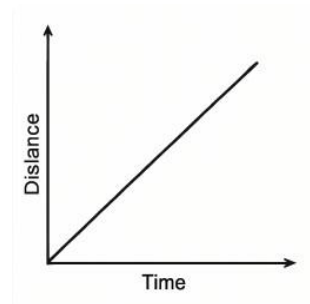
- a) Calcium carbonate → Calcium + Carbon dioxide
- b) Calcium carbonate → Calcium oxide + Carbon dioxide
- c) Calcium carbonate → Calcium hydroxide + Water
- d) Calcium carbonate → Calcium + Water

35. How many of the following are oxides?

- 1. CO
- 2. NaOH
- 3. CaO
- 4. NO_2
- 5. HCl

- a) 2
- b) 3
- c) 4
- d) 5

36. Diagram -based:



What does the graph represent?

- a) Uniform motion
- b) Non-uniform motion
- c) At rest
- d) Retardation

37. A bus moves 10 km north, then 10 km east. Its total distance and displacement are:

- a) 20 km, 0 km
- b) 20 km, 10 km
- c) 20 km, 14.1 km
- d) 14.1 km, 20 km

38. How many of these are correct statements?

- 1. Speed has no direction
- 2. Velocity is displacement/time
- 3. Uniform motion has constant acceleration
- 4. Distance can be zero

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

39. Match the disease with its pathogen

Disease Pathogen Type

- 1. Cholera A. Bacteria
- 2. Malaria B. Protozoa
- 3. Influenza C. Virus

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

40. Newton's Second Law is best represented as:

- a) $F = mv$ b) $F = ma$ c) $F = mg$ d) $F = m/v$

41. A 5 kg object experiences an acceleration of 2 m/s^2 . What is the force applied?

- a) 10 N b) 2.5 N c) 0.4 N d) 7 N

42. How many of the following are true about action-reaction forces?

1. Equal in magnitude
2. Opposite in direction
3. Act on the same object
4. Happen simultaneously

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

43. In a vacuum chamber, a feather and a stone are dropped. What happens?

- a) Feather falls first
- b) Stone falls first
- c) Both fall equally fast
- d) Both float

44. Match the organism to its economic use

Microorganism Economic Use

- | | |
|----------------|--------------------------|
| 1. Rhizobium | A. Nitrogen fixation |
| 2. Penicillium | B. Antibiotic production |
| 3. Yeast | C. Alcohol fermentation |

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

45. A body falls freely under gravity. Its velocity after 2 seconds is:

- a) 9.8 m/s b) 4.9 m/s c) 19.6 m/s d) 2 m/s

46. If a 50 kg boy runs upstairs and a 50 kg girl walks, who does more work?

- a) Boy b) Girl c) Same d) Cannot say

47. How many of the following are correct?

1. Kinetic energy = $\frac{1}{2}mv^2$
2. Potential energy = $mg \times h$
3. Unit of work = newton
4. Energy can neither be created nor destroyed

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

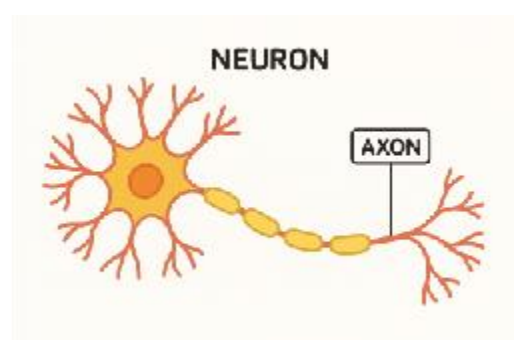
48. Which tissue in plants provides flexibility and is found at the edges of leaf stalks?

- | | |
|----------------|-----------------|
| a) Collenchyma | b) Sclerenchyma |
| c) Xylem | d) Parenchyma |

49. Under a microscope, you observe long, striated fibres with multiple nuclei. This is likely:

- | | |
|--------------------|-------------------|
| a) Smooth muscle | b) Cardiac muscle |
| c) Skeletal muscle | d) Areolar tissue |

50. In the neuron diagram, what is the function of the structure labelled part ?



- | | |
|-----------------------|-----------------------|
| a) Receives impulses | b) Transmits impulses |
| c) Stores information | d) Controls reflexes |

ANSWER KEY

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