

ACE OF PACE
Sample Paper (Medical)
Grade X moving XI

SECTION – 1 (PHYSIC)

- Which of the following is vector quantity
(1) Work (2) Energy (3) Force (4) Power
- A body of mass 5 kg is moving with acceleration 2m/s^2 . Find the net force acting on it
(1) 5 N (2) 10 N (3) 15 N (4) 20 N
- The inertia of an object depends on its:
(1) Speed (2) Shape (3) Mass (4) Acceleration
- A ball is thrown upward. Which of the following forces acts on it after leaving the hand?
(1) Upward force only (2) Downward gravitational force only
(3) Both upward and downward forces (4) No force
- A car of mass 1000 kg moving at 20 m/s is stopped by a constant force of 500 N. The time taken to stop the car is:
(1) 20 s (2) 30 s (3) 40 s (4) 50 s
- Work done is zero if
(1) Force is applied but displacement is zero (2) Displacement is perpendicular to force
(3) Displacement is zero (4) All of the above
- A man lifts a 20 kg object to height of 2 m (Take $g = 10 \text{ m/s}^2$). Work done = ?
(1) 200 J (2) 300 J (3) 400 J (4) 500 J
- If power = 200 W and time = 10 s, then total work done is
(1) 1000 J (2) 1500 J (3) 2000 J (4) 2500 J
- A ball of mass 1 kg is moving with speed 10 m/s. Its kinetic energy = ?
(1) 25 J (2) 50 J (3) 100 J (4) 150 J
- A body of mass 2 kg falls from a height of 5 m. Potential energy lost = ?
(1) 25 J (2) 50 J (3) 75 J (4) 100 J
- The angle between incident ray and reflected ray when angle of incidence is 30° is
(1) 30° (2) 45° (3) 60° (4) 90°
- In a concave mirror, when object is placed at infinity, the image is formed at
(1) Focus (2) Centre of curvature
(3) Between focus and pole (4) Behind the mirror

13. The refractive index of glass is 1.5. The speed of light in glass is ($c = 3 \times 10^8$ m/s)
(1) 2.0×10^8 m/s (2) 2.5×10^8 m/s (3) 1.5×10^8 m/s (4) 3.0×10^8 m/s
14. When light passes from a rarer medium to denser medium
(1) It bends away from the normal (2) It bends toward the normal
(3) No bending (4) It always bends 45°
15. The power of convex lens of focal length 50 cm is:
(1) + 1D (2) +2D (3) +3D (4) + 4D

SECTION – 2 (CHEMISTRY)

16. Which of the following statements is true about a balanced chemical equation?
(1) The total number of atoms of each element remains the same
(2) The mass of products is less than reactants
(3) Atoms can be created or destroyed
(4) It does not follow the law of conservation of mass
17. Which of the following correctly describes the periodic trend in electronegativity across a period?
(1) Decreases from left to right
(2) Remains constant
(3) Increases from left to right
(4) Increases then decreases
18. Which of the following elements has the smallest atomic size?
(1) Mg
(2) Al
(3) Si
(4) Cl
19. Which of the following statements is correct regarding Group 17 elements?
(1) They are noble gases
(2) They have 2 electrons in the outermost shell
(3) They readily gain electrons
(4) They are inert
20. Which element has a larger atomic radius than sodium (Na)?
(1) Mg
(2) Al
(3) K
(4) Cl
21. What is the product formed when calcium reacts with water?
(1) CaO
(2) $\text{Ca(OH)}_2 + \text{H}_2$
(3) CaCO_3
(4) CaCl_2
22. In which reaction does a precipitate form?
(1) $\text{Na}_2\text{SO}_4 + \text{BaCl}_2 \rightarrow \text{BaSO}_4 \downarrow + 2\text{NaCl}$
(2) $\text{Zn} + \text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$
(3) $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2$
(4) $\text{Na} + \text{Cl}_2 \rightarrow \text{NaCl}$
23. Which of the following pairs has the most similar chemical properties?
(1) Li and Na
(2) Li and Be
(3) Na and Mg
(4) H and He
24. Which of these is not characteristic of a chemical reaction?
(1) Formation of a new substance
(2) Involves energy change
(3) Change in mass
(4) Evolution of gas
25. Which of the following reactions is decomposition reaction?
(1) $2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2$
(2) $\text{HCl} + \text{NaOH} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
(3) $\text{Fe} + \text{CuSO}_4 \rightarrow \text{FeSO}_4 + \text{Cu}$
(4) $\text{CaCO}_3 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{CO}_2 + \text{H}_2\text{O}$
26. Which of the following is a redox reaction?
(1) $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
(2) $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$
(3) $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} + \text{NaNO}_3$
(4) $\text{BaCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$
27. In the reaction: $\text{Cu} + 2\text{AgNO}_3 \rightarrow \text{Cu(NO}_3)_2 + 2\text{Ag}$
What type of reaction is this?
(1) Combination
(2) Displacement
(3) Decomposition
(4) Double displacement
28. The modern periodic Law is based on:
(1) Atomic number
(2) Atomic mass
(3) Number of neutrons
(4) Mass number

29. Which of the following is not a limitation of Mendeleev's periodic table?
- (1) No fixed position for hydrogen
 - (2) No place for isotopes
 - (3) Grouping of dissimilar elements
 - (4) Arranged elements by increasing atomic number
30. The valency of elements in the same group is :
- (1) Increasing down the group
 - (2) Constant throughout the group
 - (3) Decreasing down the group
 - (4) Unpredictable

SECTION – 3 (BIOLOGY)

31. In all living things, the basic unit of life is the
(1) Nucleus (2) Cell (3) Nucleolus (4) Brain
32. Identify the correct path of urine in the human body.
(1) Kidney → urinary bladder → urethra → ureter
(2) Urinary bladder → ureter ← kidney → urethra
(3) Kidney → ureter → urethra → urinary bladder
(4) Kidney → ureter → urinary bladder → urethra
33. Chromosomes move toward opposite ends of the cell during:
(1) Interphase (2) Anaphase (3) Telophase (4) Metaphase
34. The presence of which of the following types of organs in two organisms indicates that they are derived from the same ancestor?
(1) Analogous organs (2) Respiratory organs (3) Digestive organs (4) Homologous organs
35. If the egg of a fly has 6 chromosomes, how many chromosomes will the body cell have
(1) 7 (2) 14 (3) 12 (4) 10
36. Conversion of large fat droplets into smaller droplets are
(1) Neutralisation (2) Assimilation (3) Emulsification (4) Anabolism
37. Re-arrange the following taxonomic terms in correct hierarchical order.
Order-Family-Phylum-Class
(1) Family-Phylum-Class-Order (2) Phylum-Order-Class-Family
(3) Class-Phylum-Family-Order (4) Phylum-Class-Order-Family
38. Which of the following was absent in primitive atmosphere of earth
(1) Hydrogen (2) Oxygen (3) Nitrogen (4) methane
39. Bryophyllum reproduces through buds, which are produced on
(1) Root (2) Shoot (3) Stem (4) Leaf
40. The vein which brings clean blood from the lungs into the heart is known as:
(1) Pulmonary vein (2) Inferior vena cava
(3) Superior vena cava (4) Pulmonary artery
41. Which of the following is a pair of viral diseases?
(1) Typhoid, Tuberculosis (2) Ringworm, AIDS
(3) Common cold, AIDS (4) Dysentery, Common cold
42. During contraction, what prevents the backflow of blood inside the heart?
(1) Valve in heart (2) Thick muscular walls of ventricles
(3) Thin walls of atria (4) Thick walls of atria

43. Which of the following pair is correctly matched.
 (i) Fungi – Regeneration (ii) Mosses – Fragmentation
 (iii) Planaria – Budding
 (1) (i) and (ii) (2) Both (i) and (iii) (3) only (ii) (4) only (iii)
44. The enzymes pepsin and trypsin are secreted respectively by:
 (1) Stomach and pancreas (2) Salivary gland and stomach
 (3) Liver and pancreas (4) Liver and salivary gland
45. Match column-I with column-II and select the correct option.
- | Column - I | Column - II |
|--------------------|--------------------|
| A. Golgi apparatus | I. Storage |
| B. Mitochondria | II. Photosynthesis |
| C. Vacuoles | III. Transport |
| D. Grana | IV. Secretion |
| | V. Respiration |
- (1) A – IV; B – V; C – I; D – II (2) A – I; B – II; C – IV; D – III
 (3) A – IV; B – I; C – II; D – III (4) A – I; B – II; C – III; D – IV
46. Which of the following method of contraception protects from acquiring sexually transmitted diseases?
 (1) Surgery (2) Condoms (3) Copper-T (4) Oral-pills
47. The number of chromosomes in a human gamete is:
 (1) 23 (2) 46 (3) 92 (4) 69
48. Which of the following statement is true about Lamarck's theory of evolution?
 (1) It suggest that organism can acquire new characteristic through use or disuse of body parts
 (2) It suggest that organisms are randomly selected for survival based on their inherited traits
 (3) It suggest that all organisms have a common ancestor
 (4) It suggest that the environment plays no role in the evolution of species
49. Which of the following are examples of autotrophic organisms?
 (1) Fungi and virus (2) Virus and bacteria
 (3) Green plants and some bacteria (4) None of the above
50. In which part of the cell, glycolysis process occurs?
 (1) Nucleus (2) Mitochondria (3) Chloroplast (4) Cytoplasm