



IIT

KALRASHUKLA

A Class Apart

CLASS – 10th (MEDICAL)

Time : 90 minutes

Maximum Marks : 180

:- Important Instructions :-

- (i) Use only Black Ball Point pen.
 - (ii) This test booklet contains 3 Sections of question paper consisting of
 - SECTION - I → PHYSICS (15 Questions)
 - SECTION - II → CHEMISTRY (15 Questions)
 - SECTION - III → BIOLOGY (15 Questions)
 - (iii) Each question is allotted **4 marks for correct response**.
 - (iv) **1 mark will be deducted** for marking incorrect or multiple responses.
 - (v) No deduction will be made from total marks for unattempted questions.
 - (vi) For each question, there is **only 1 correct** response.
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Name of Student (in Capital Letter) : _____

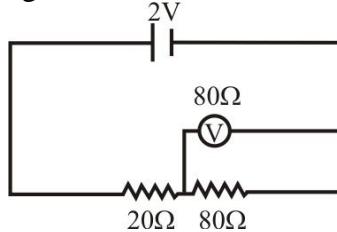
Candidate Signature : _____

Invigilator Signature : _____

SECTION - I**PHYSICS**

1. A conductor of resistance 8Ω is bent in the form of a circle. What will be the resistance between two points on any diameter of the circle?
 (A) 1Ω (B) 2Ω (C) 8Ω (D) 16Ω

2. Reading given by voltmeter for given circuit is ,



- (A) 0.80V (B) 1.33V (C) 1.60V (D) 2.00V
3. An electron moving is at 10^7 m/s in a uniform magnetic field of 2×10^{-4} Tesla. Find the magnetic force acting on the electron
 (A) 1.6×10^{-16} N (B) 3.2×10^{-16} N (C) 6.4×10^{-16} N (D) Zero
4. An electron of mass m_e , initially at rest, moves through a certain distance in a uniform electric field in time t_1 . A proton of mass m_p , also initially at rest, takes time t_2 to move through an equal distance in this uniform electric field. Neglecting the effect of gravity, the ratio $\frac{t_2}{t_1}$ is nearly equal to :
 (A) 1 (B) $\left(\frac{m_p}{m_e}\right)^{\frac{1}{2}}$ (C) $\left(\frac{m_e}{m_p}\right)^{\frac{1}{2}}$ (D) 1836
5. One kilowatt is equal to _____ horse power.
 (A) 1.34 (B) 1.32 (C) 1.28 (D) 1.38

Space for Rough Work

6. Arrange the following steps to verify the Ohm's law in proper sequence.
- Switch on the electric circuit.
 - Move the position of the slider of the rheostat and note down the ammeter and voltmeter readings.
 - Connect ammeter, key, battery, rheostat and resistor in series by using conducting wires.
 - Note down the Ammeter and voltmeter reading.
 - Connect a voltmeter across the resistor.
 - Determine the ratio of voltmeter reading and ammeter reading in each case.
 - Note that the ratio of voltmeter and ammeter reading are equal in each case.
- (A) c a e d b f g (B) c e a d b f g (C) a b e c d f g (D) b c e d f h g
7. In an AC generator, maximum number of lines of force pass through the coil when the angle between the plane of coil and lines of force is _____.
- (A) 0° (B) 60° (C) 30° (D) 90°
8. _____ is an example of isobars.
- (A) ${}_{14}\text{Si}^{31}$, ${}_{15}\text{P}^{32}$ (B) ${}_{6}\text{C}^{13}$, ${}_{7}\text{N}^{13}$
(C) ${}_{7}\text{N}^{14}$, ${}_{7}\text{N}^{15}$ (D) ${}_{16}\text{C}^{32}$, ${}_{15}\text{Pb}^{13}$
9. _____ reaction takes place in the sun.
- (A) nuclear fission (B) nuclear fusion
(C) Chemical (D) both (A) and (B)
10. Solar energy provides
- (A) wind energy (B) light energy (C) heat energy (D) All the above

Space for Rough Work

11. A ray of light passes through an equilateral prism such that angle of incidence is equal to the angle of emergence and the latter is equal to $\frac{3}{4}$ th angle of prism. The angle of deviation is
(A) 45° (B) 39° (C) 20° (D) 30°
12. A convex lens of power + 5D is placed in contact with a concave lens of power -2 D, the power of combination is
(A) 2 D (B) 4 D (C) 5 D (D) 3 D
13. Among identical spheres A and B having charges as -5 C and -16 C
(A) -5 C is at higher potential (B) -16 C is at higher potential.
(C) both are at equal potential (D) it cannot be said.
14. The potential difference across a resistor of resistance 10Ω , if 10^{20} electrons flow through it in one second is _____ V.
(A) 320 (B) 400 (C) 80 (D) 160
15. A small object is placed at a distance of 3.6 cm from a magnifier of focal length 4.0 cm. Find the angular magnification.
(A) 3 (B) 5 (C) 7 (D) 9

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SECTION - II**CHEMISTRY**

16. From the list of elements given below which of the following option contains three metalloids?
(A) Si, Ge, Zr, Te (B) Si, P, S, Cl (C) As, Bi, Br, Kr (D) Po, Co, Fe, Xe
17. A student set-up an apparatus for finding the melting point of ice. When half the ice melted, the temperature shown by thermometer is :
(A) more than 0°C (B) less than 0°C
(C) zero degree celsius (D) 100°C
18. What is aqua regia?
(A) 1 : 2 Mixture of Chromic acid and sulphuric acid
(B) 1 : 3 Mixture of Conc. HCl and Conc. HNO₃
(C) 1 : 3 Mixture of Conc. HNO₃ and Conc. HCl
(D) 1 : 1 Mixture of Conc. H₂SO₄ and Conc. HCl
19. The shape of Graphite is :
(A) Square planar (B) Cubical
(C) Face centred cubic (D) Hexagonal
20. In given compounds. Which is present in red ant?
(A) HCOOH (B) CH₃COOH (C) CH₃CH₂O (D) CH₄
21. In Benzene number of covalent bonds present:
(A) 18 (B) 12 (C) 15 (D) 6
22. The IUPAC name of oxalic acid is :
(A) Ethanoic acid (B) Ethanol
(C) Ethanediol (D) Ethanedioic acid

Space for Rough Work

23. $\text{CH}_3 - \text{CH} = \text{CH}_2 \xrightarrow[\text{dil H}_2\text{SO}_4]{\text{H}_2\text{O}}$ A; A is.
- (A) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{OH}$ (B) $\begin{array}{c} \text{OH} \\ | \\ \text{CH}_2 - \text{CH}_2 - \text{CH}_2 \\ | \\ \text{OH} \end{array}$
- (C) $\begin{array}{c} \text{OH} \\ | \\ \text{CH}_3 - \text{CH} - \text{CH}_3 \end{array}$ (D) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{SO}_3\text{H}$
24. Marsh gas is :
 (A) CH_4 (B) C_2H_6 (C) CHCl_3 (D) NH_3
25. In given gases which one is most basic ?
 (A) PH_3 (B) CO_2 (C) SO_3 (D) NH_3
26. What test is used to distinguish between oils and fats?
 (A) Bromine water test (B) Litmus paper test
 (C) Chlorine water test (D) Iodine test
27. The correct order of radii is :
 (A) $\text{N} < \text{Be} < \text{B}$ (B) $\text{F}^- < \text{O}^{2-} < \text{N}^{3-}$ (C) $\text{Na} < \text{Li} < \text{K}$ (D) $\text{Fe}^{3+} < \text{Fe}^{2+} < \text{Fe}^{4+}$
28. In following option, chose incorrect statement:
 (A) Alcohols are colourless liquid and have fruity smell.
 (B) On the oxidation of alcohols, we will obtain the aldehydes, ketones, carboxylic acids.
 (C) Only primary alcohols can be obtained by using Grignard reagent.
 (D) Alcohols are soluble in most of the organic liquid.
29. A mixture of iron filings and sulphur is heated gently in a hard glass test tube. The observation would be :
 (A) sulphur will start melting first (B) iron will start melting first
 (C) sulphur will sublime (D) both will melt at the same time
30. What is the formula of dolomite?
 (A) NaKCO_3 (B) $\text{FeSO}_4(\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$
 (C) $\text{KCl} \cdot \text{MgCl}_2 \cdot 6\text{H}_2\text{O}$ (D) $\text{CaCO}_3 \cdot \text{MgCO}_3$

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SECTION - III**BIOLOGY**

31. For photosynthesis, the green plants need?
(A) Chlorophyll (B) CO₂ and water (C) Light (D) Water
32. Nephron is functional unit of
(A) Lungs (B) Brain (C) Kidney (D) Heart
33. A two-layered sac surrounding the heart is called
(A) pericardium (B) Perichondrium (C) Periosteum (D) Pleura
34. Which of the following is a plant hormone?
(A) Insulin (B) Thyroxine (C) Oestrogen (D) Cytokinin
35. Archaeopteryx was a link between
(A) Reptiles and mammals (B) Birds and mammals
(C) Reptiles and birds (D) Amphibians and reptiles
36. Chlorophyll is present
(A) In the grana of chloroplasts (B) On the surface of chloroplasts
(C) In the stroma (D) Dispersed throughout the chloroplasts
37. Dentine is the
(A) Softest part of the tooth
(B) Hardest part of the tooth
(C) Part of the tooth between enamel and pulp
(D) Bone
38. Glucose gets converted into pyruvate in
(A) Mitochondria (B) Muscle cells (C) Cytoplasm (D) Yeast

Space for Rough Work

39. The trachea is prevented from collapsing by
(A) Complete cartilaginous rings (B) Incomplete cartilaginous rings
(C) Bony rings (D) Chitinous rings
40. which of the following is not a ductless gland?
(A) Adrenal (B) Thyroid (C) Pituitary (D) Liver
41. Select the mismatched pair
(A) Adrenaline - Pituitary gland
(B) Testosterone - Testes
(C) Estrogen - Ovary
(D) Thyroxine - Thyroid gland
42. Fruit is formed from
(A) Stamen (B) Stigma (C) Ovary (D) Ovule
43. The process of release of an egg from the ovary is called
(A) Menstruation (B) Ovulation (C) Oogenesis (D) Gestation
44. Cavities of brain are called
(A) Auricles (B) Ventricles (C) Coelom (D) Lumen
45. An artery is a vessel that carries blood
(A) With high concentration of oxygen (B) With high concentration of CO₂
(C) Away from the heart (D) Towards the heart

Space for Rough Work