

GUJCET-PCE-2024Test Booklet No. **1300618**Test Booklet Set No. **13**

This booklet contains 32 pages.

DO NOT open this Test Booklet until you are asked to do so.**Important Instructions :**

- 1) The Physics and Chemistry test consists of 80 questions. Each question carries 1 mark. For each correct response, the candidate will get 1 mark. For each incorrect response $\frac{1}{4}$ mark will be deducted. The maximum marks are 80.
- 2) This Test is of 2 hours duration.
- 3) Use **Black Ball Point Pen only** for writing particulars on OMR Answer Sheet and marking answers by darkening the circle '●'.
- 4) Rough work is to be done on the space provided for this purpose in the Test Booklet only.
- 5) **On completion of the test, the candidate must handover the Answer Sheet to the Invigilator in the Room / Hall. The candidates are allowed to take away this Test Booklet with them.**
- 6) The Set No. for this Booklet is **13**. Make sure that the Set No. printed on the Answer Sheet is the same as that on this booklet. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of both the Test Booklet and the Answer Sheet.
- 7) The candidate should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet.
- 8) Do not write your Seat No. anywhere else, except in the specified space in the Test Booklet / Answer Sheet.
- 9) Use of White fluid for correction is not permissible on the Answer Sheet.
- 10) Each candidate must show on demand his / her Admission Card to the Invigilator.
- 11) No candidate, without special permission of the Superintendent or Invigilator, should leave his / her seat.
- 12) Use of Simple (Manual) Calculator is permissible.
- 13) The candidate should not leave the Examination Hall without handing over their Answer Sheet to the Invigilator on duty and must sign the Attendance Sheet (Patrak - 01). Cases where a candidate has **not** signed the Attendance Sheet (Patrak - 01) will be deemed not to have handed over the Answer Sheet and will be dealt with as an unfair means case.
- 14) The candidates are governed by all Rules and Regulations of the Board with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of the Board.
- 15) No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.
- 16) The candidates will write the Correct Test Booklet Set No. as given in the Test Booklet / Answer Sheet in the Attendance Sheet. (Patrak - 01)

PHYSICS

- 1) As indicated below which one is the equation of Ampere-Maxwell law?

(A) $\oint \vec{E} \cdot d\vec{l} = \mu_0 i_c + \mu_0 \epsilon_0 \frac{d\phi_E}{dt}$ (B) $\oint \vec{B} \cdot d\vec{l} = \mu_0 i_c + \mu_0 \epsilon_0 \frac{d\phi_E}{dt}$

(C) $\oint \vec{B} \cdot d\vec{A} = \mu_0 i_c + \mu_0 \epsilon_0 \frac{d\phi_E}{dt}$ (D) $\oint \vec{B} \cdot d\vec{l} = \mu_0 i_c + \mu_0 \epsilon_0 \frac{d\phi_B}{dt}$

- 2) Cellular phones use radio waves to transmit voice communication in the _____ band.

(A) LF

(B) HF

☒ (C) VHF

(D) UHF

- 3) For plane mirror focal length is _____ m.

(A) ∞

(B) -1

☒ (C) 0

(D) 1

- 4) A rays coming from an object which is situated at ∞ distance in air and falls on a spherical glass surface ($n = 1.5$). Then the distance of image will be _____ R is the radius of curvature of a spherical glass.

(A) 1.5R

(B) R

☒ (C) 3R

(D) 2R

(Space for Rough Work)

- 5) For a thin prism, the angle of prism is 4° having refractive index 1.6, then the angle of minimum deviation will be _____.
(A) 0.4° (B) 2.0°
(C) 2.4° (D) 1.6°
- 6) Consider a refracting telescope whose objective has a focal length of 1m and the eyepiece a focal length of 1cm, then magnifying power of this telescope will be _____.
(A) 100 (B) 50
(C) 200 (D) 1
- 7) The phase difference between any two particle of a given wave front is _____ rad.
(A) $\pi/4$ (B) 0
(C) $\pi/2$ (D) π
- 8) In a Young's double-slit experiment, the slits are separated by 0.28 mm and the screen is placed 1.4 m away. The distance between the central bright fringe and the fourth bright fringe is measured to be 1.2 cm. Then the wavelength of light used in the experiment is _____.
(A) 500 nm (B) 660 nm
(C) 600 nm (D) 550 nm

(Space for Rough Work)

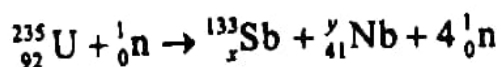
- 9) The refractive index of glass is 1.6 then the speed of light in glass will be _____
speed of light in vacuum is $3.0 \times 10^8 \text{ ms}^{-1}$. 3×10^8
- (A) $1.48 \times 10^8 \text{ ms}^{-1}$ (B) $1.66 \times 10^8 \text{ ms}^{-1}$
(C) $1.22 \times 10^8 \text{ ms}^{-1}$ (D) $1.88 \times 10^8 \text{ ms}^{-1}$
- 10) Js is the unit of _____ physical quantity.
- (A) Angular momentum (B) Work function
(C) Moment of Inertia (D) Rydberg constant
- 11) To emit an electron from the metal, minimum electric field required is _____.
- (A) 10^4 Vm^{-1} (B) 10^6 Vm^{-1}
(C) 10^5 Vm^{-1} (D) 10^8 Vm^{-1}
- 12) A ball of mass 0.12 kg moving with a speed of 20 ms^{-1} has de-Broglie wavelength _____.
- ($h = 6.63 \times 10^{-34} \text{ Js}$)
- (A) $4.76 \times 10^{-34} \text{ m}$ (B) $2.76 \times 10^{-34} \text{ m}$
(C) $3.76 \times 10^{-34} \text{ m}$ (D) $1.76 \times 10^{-34} \text{ m}$

(Space for Rough Work)

- 13) The ratio of radius for second and third orbit of hydrogen atom is _____.
(A) 4 : 9 (B) 3 : 2
(C) 9 : 4 (D) 2 : 3
- 14) In Geiger-Marsden scattering experiment the thickness of a thin foil of gold is _____ m.
(A) 6.2×10^{-7} (B) 5.5×10^{-7}
(C) 2.1×10^{-7} (D) 4.2×10^{-7}
- 15) The ground state energy of hydrogen atom is -13.6 eV, then the potential energy of the electron in this state will be _____.
(A) -6.8 eV (B) -27.2 eV
(C) 13.6 eV (D) 27.2 eV
- 16) Some atomic species of the same element differing in mass are called _____.
(A) Isotope (B) Isotone
(C) Isomar (D) Isobar

(Space for Rough Work)

17) Find the value of x and y from below given nuclear reaction



☒ (A) (133, 41)

(B) (51, 95)

(C) (92, 1)

(D) (51, 99)

18) The ratio of the nuclear radii of the ${}_1^1\text{H}$ and ${}_{13}^{27}\text{Al}$ is _____.

(A) 3 : 5

(B) 1 : 2

(C) 2 : 1

☒ (D) 1 : 3

19) Which impurity is used to convert pure semiconductor into p-type semiconductor?

☒ (A) Phosphorous

(B) Antimony

(C) Indium

(D) Arsenic

20) The energy required for electron to jump the forbidden band for germanium at room temperature in the intrinsic semiconductor is _____ eV.

(A) 0.05

(B) 0.72

(C) 5.4

(D) 1.1

(Space for Rough Work)

21) The Dimensional formula for Electric Flux is _____.

☒ (A) $M^1 L^3 T^{-3} A^1$

(B) $M^1 L^1 T^{-3} A^{-1}$

(C) $M^{-1} L^{-3} T^3 A^1$

☒ (D) $M^1 L^3 T^{-3} A^{-1}$

22) For an electric dipole an angle between $\vec{E}$ and $\vec{P}$ at a point on the equatorial plane is _____.

(A) 45°

(B) 180°

☒ (C) 0°

(D) 90°

23) An infinite line charge produces an electric field of $9 \times 10^4 \text{ N/C}$ at a distance of 2cm. Then the linear charge density will be _____.
($K = 9 \times 10^9 \text{ Nm}^2/\text{C}^2$)

☒ (A) $0.1 \mu\text{C/m}$

(B) $10 \mu\text{C/m}$

(C) $0.01 \mu\text{C/m}$

(D) $1 \mu\text{C/m}$

(Space for Rough Work)

- 24) If an electron is accelerated by a potential difference of 2.5V it would gain energy of _____.

(Take charge of electron $1 \times 10^{-19}\text{C}$)

(A) 2.5 erg

(B) 2.5 MeV

☒ (C) 2.5 eV

(D) 2.5 J

- 25) A radius of spherical charged shell is 10 cm and electric potential on its surface is 100 V, then the potential at 2 cm from the centre of the shell will be _____.

(A) 0 V

(B) 1 V

(C) 200 V

(D) 100 V

- 26) A parallel plate capacitor with air between the plates has a capacitance of 4 pF. If the distance between the plates is reduced by half and the space between them is filled with a substance of dielectric constant 6 then the value of capacitance will be _____.

(A) 48 pF

(B) 24 pF

(C) 12 pF

(D) 98 pF

(Space for Rough Work)

27) The SI units of the current density is _____.

(A) Am^2

~~(B)~~ Am^{-1}

(C) Am^{-1}

(D) Am^2

28) The magnitude of the drift velocity per unit electric field is known as _____.

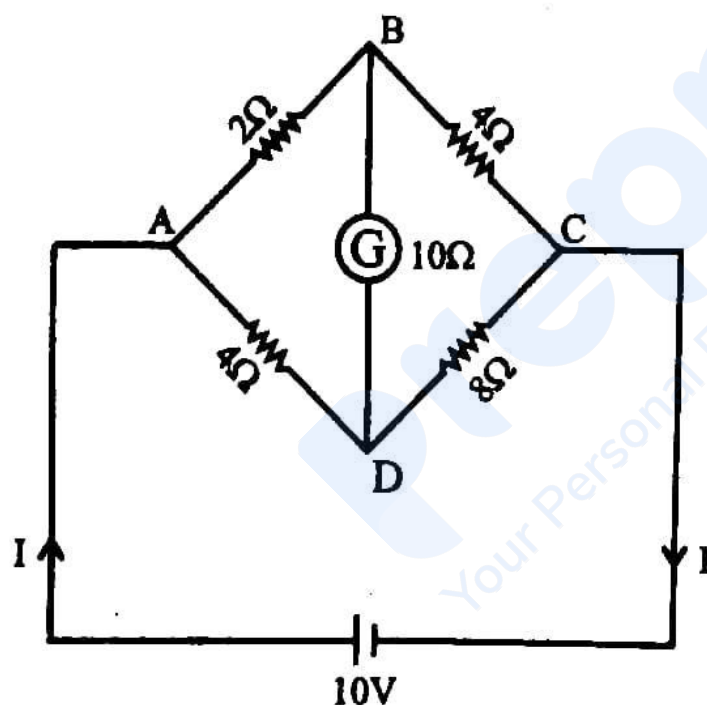
~~(A)~~ Charge density

(B) Conductivity

(C) Mobility

(D) Resistivity

29)



As shown in the circuit diagram find the value of I _____.

(A) 2.8 A

(B) 0.4 A

~~(C)~~ 1.8 A

(D) 2.5 A

(Space for Rough Work)

- 30) A silver wire has a resistance of 2.1Ω at 27.5°C and a resistance of 2.7Ω at 100°C . Then the temperature coefficient of resistivity of silver will be _____.

(A) $3.9 \times 10^3\ ^\circ\text{C}$

(B) $3.9 \times 10^3\ ^\circ\text{C}^{-1}$

☒ (C) $3.9 \times 10^{-3}\ ^\circ\text{C}$

(D) $3.9 \times 10^{-3}\ ^\circ\text{C}^{-1}$

- 31) $\frac{V_s}{A_m}$ is the unit of which physical quantity?

(A) χ_m

(B) μ_0

(C) χ_e

(D) ϵ_0

- 32) An ideal ammeter and an ideal voltmeter has resistance _____ Ω and _____ Ω respectively.

☒ (A) $(0, \infty)$

(B) $(\infty, 0)$

(C) (∞, ∞)

(D) $(0, 0)$

(Space for Rough Work)

- 33) A solenoid has a core of a material with relative permeability 400. The windings of the solenoid are insulated from the core and carry a current of 2A. If the number of turns is 1000 per meter then the value of magnetic intensity will be _____.
- (A) $8 \times 10^{-5} \text{ Am}^{-1}$ (B) $2 \times 10^3 \text{ Am}^{-1}$
(C) $2 \times 10^{-3} \text{ Am}^{-1}$ (D) $8 \times 10^5 \text{ Am}^{-1}$
- 34) A short bar magnet placed with its axis at 30° with a uniform external magnetic field of 0.5T experiences a torque of magnitude equal to $4.5 \times 10^{-2} \text{ J}$. Then the magnitude of magnetic moment of the magnet will be _____.
- (A) $18 \times 10^{-2} \text{ JT}^{-1}$ (B) $36 \times 10^{-2} \text{ JT}^{-1}$
(C) $1.8 \times 10^2 \text{ JT}^{-1}$ (D) $3.6 \times 10^2 \text{ JT}^{-1}$
- 35) A square loop of side 10 cm and resistance 0.5Ω is placed vertically in the east-west plane. A uniform magnetic field of 0.10 T is setup across the plane in the north-east direction. The magnetic field is decreased to zero in 0.70 s at a steady rate. Then the magnitude of induced current during this time interval will be _____.
- (A) $8.0 \times 10^{-3} \text{ A}$ (B) $4.0 \times 10^{-3} \text{ A}$
(C) $6.0 \times 10^{-3} \text{ A}$ (D) $2.0 \times 10^{-3} \text{ A}$

(Space for Rough Work)

- 36) A coil has N turns and current passes through it is I ampere then we obtain L Henry of self inductance. Now if current change to $5I$ then new self inductance will be _____ H.
- (A) L (B) $1/5 L$
(C) $25 L$ (D) $5 L$
- 37) A pure inductor of 50.0 mH is connected to a source of 220 V . Then rms current in the circuit will be _____. The frequency of the source is 50 Hz .
- (A) 21 A (B) 7 A
(C) 14 A (D) 28 A
- 38) In LCR series a.c. circuit at resonance the value of power factor will be _____.
- (A) ∞ (B) 1
(C) -1 (D) 0

(Space for Rough Work)

39) If the primary coil of a transformer has 100 turns and the secondary has 200 turns. Then for a input of 220 V at 10 A find output current, in step up transformer.

(A) 5.0 A

~~(B)~~ 50.0 A

(C) 0.5 A

(D) 0.05 A

40) For obtaining wattless current _____ is connected with a.c. supply.

(A) Only R

(B) R – L in series

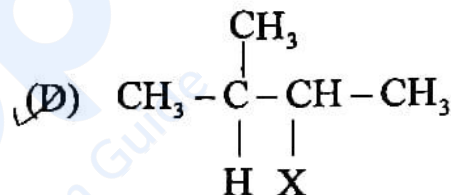
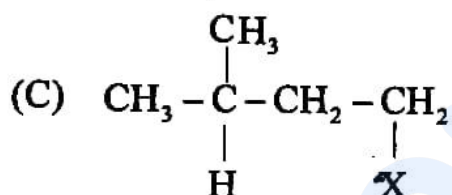
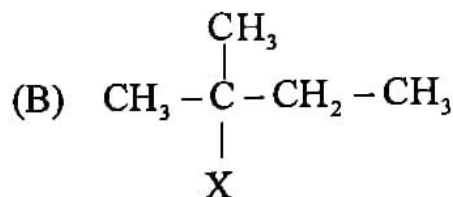
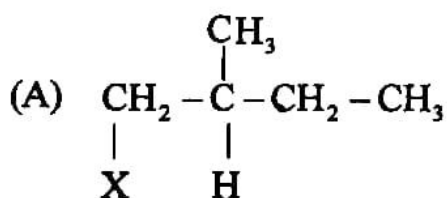
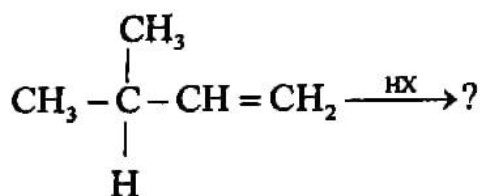
(C) Only L

~~(D)~~ R – C in series

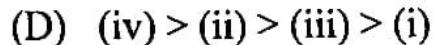
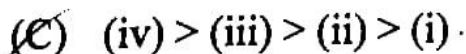
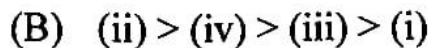
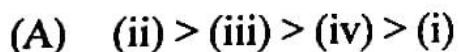
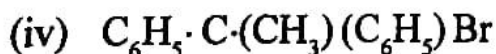
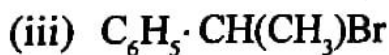
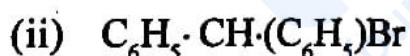
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CHEMISTRY

41) What is the major product in the following reaction?



42) Predict the order of reactivity of the following compounds in $\text{S}_\text{N}1$ reaction.



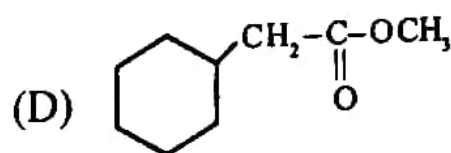
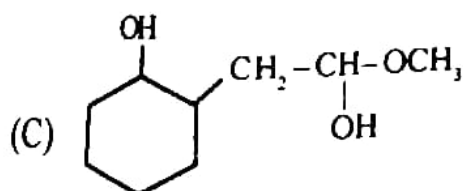
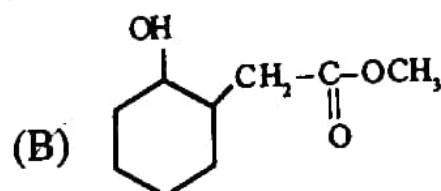
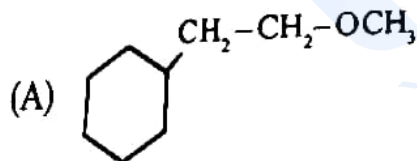
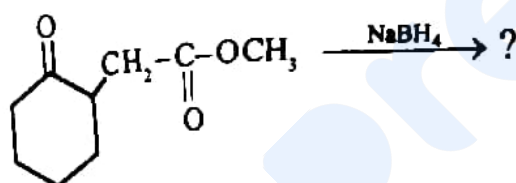
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43) Match the reactions given in column - I with the names given in column - II.

Column - I	Column - II
i) $R-Cl + NaI \xrightarrow[\text{acetone}]{\text{dry}} R-I + NaCl$	a) Swarts reaction
ii) $CH_3-Br + AgF \xrightarrow{\Delta} CH_3-F + AgBr$	b) Wurtz reaction
iii) $R-X + Mg \xrightarrow[\text{ether}]{\text{dry}} R-Mg-X$ $\downarrow H_2O$ $RH + Mg(OH)X$	c) Finkelstein reaction d) Grignard reaction

- (A) (i) $\rightarrow$ (c); (ii) $\rightarrow$ (a); (iii) $\rightarrow$ (d)
 (B) (i) $\rightarrow$ (d); (ii) $\rightarrow$ (c); (iii) $\rightarrow$ (b)
 (C) (i) $\rightarrow$ (a); (ii) $\rightarrow$ (c); (iii) $\rightarrow$ (d)
 (D) (i) $\rightarrow$ (b); (ii) $\rightarrow$ (a); (iii) $\rightarrow$ (d)

44) Which product will be obtained in the following reaction _____.

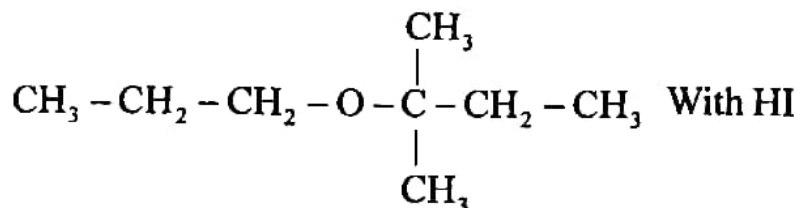


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45) Predict the major product of acid catalysed dehydration of butan-1-ol.

- (A) $2\text{CH}_2 = \text{CH}_2$ (B) $\text{CH}_3 - \overset{\text{CH}_3}{\underset{|}{\text{C}}} = \text{CH}_2$
 (C) $\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_3$ (D) $\text{CH}_3 - \text{CH}_2 - \text{CH} = \text{CH}_2$

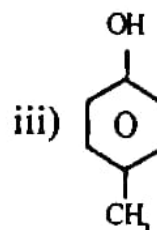
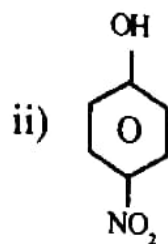
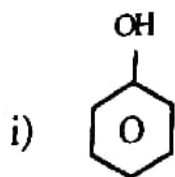
46) Give the major product formed by heating



- (A) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{OH} + \text{CH}_3 - \text{CH}_2 - \overset{\text{CH}_3}{\underset{\text{CH}_3}{| \text{C} |}} - \text{I}$
 (B) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{OI} + \text{CH}_3 - \text{CH}_2 - \overset{\text{CH}_3}{\underset{\text{CH}_3}{| \text{CH} |}}$
 (C) $\text{CH}_3 - \text{CH}_3 + \text{I} - \text{CH}_2 - \text{O} - \overset{\text{CH}_3}{\underset{\text{CH}_3}{| \text{C} |}} - \text{CH}_2 - \text{CH}_3$
 (D) $\text{CH}_3\text{CH}_2\text{CH}_2\text{I} + \text{CH}_3 - \text{CH}_2 - \overset{\text{CH}_3}{\underset{\text{CH}_3}{| \text{C} |}} - \text{OH}$

(Space for Rough Work)

47) Arrange the following compounds in decreasing order of their acidic strength



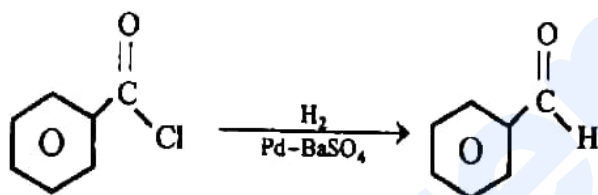
(A) (ii) > (iii) > (i)

(B) (iii) > (i) > (ii)

(C) (i) > (ii) > (iii)

(D) (ii) > (i) > (iii)

48) Name the following reaction.



(A) Clemmensen reduction

(B) Stephen reaction

(C) Etard reaction

~~(D) Rosenmund reduction~~

49) 'R' + $\text{CH}_3 - \text{CO} - \text{CH}_3 \xrightarrow{\text{H}^+}$ Schiff's base what is 'R' in this reaction?

(A) $\text{C}_6\text{H}_5 - \text{NH} - \text{NH}_2$

(B) $\text{NH}_2 - \text{NH}_2$

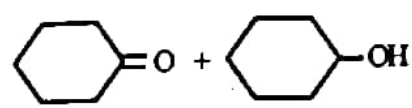
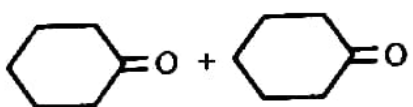
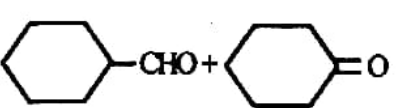
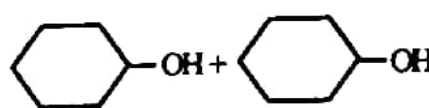
(C) $\text{CH}_3 - \text{NH}_2$

(D) NH_2OH

(Space for Rough Work)



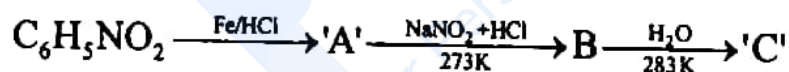
What is X in this reaction?

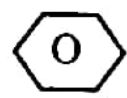
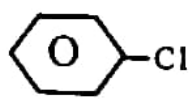
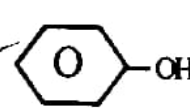
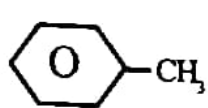
- (A)  (B) 
 (C)  (D) 

51) Which of the following carboxylic acid has least pKa value among all?

- (A) $\text{NO}_2 \cdot \text{CH}_2 \cdot \text{COOH}$ (B) $\text{CH}_3 \cdot \text{COOH}$
 (C) HCOOH (D) $\text{C}_6\text{H}_5 \cdot \text{COOH}$

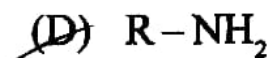
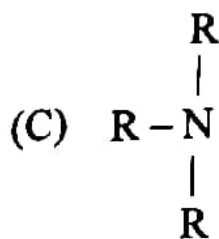
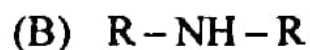
52) Identify 'C' in the following reaction.



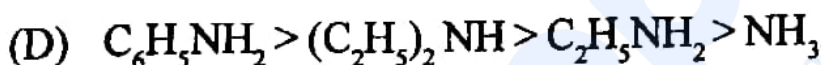
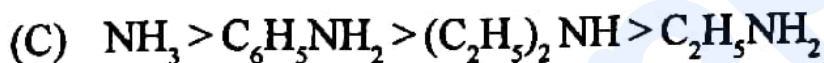
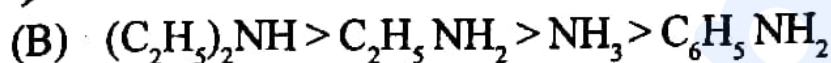
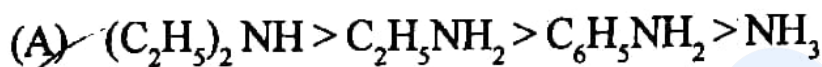
- (A)  (B) 
 (C)  (D) 

(Space for Rough Work)

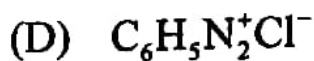
53) Which amine is prepared by Gabriel phthalimide synthesis?



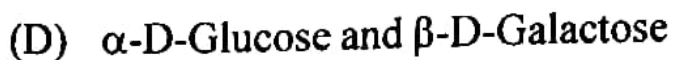
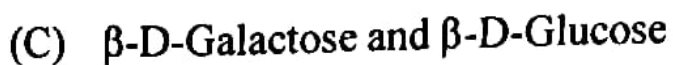
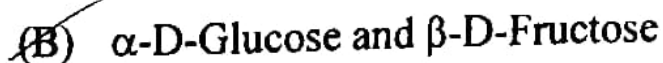
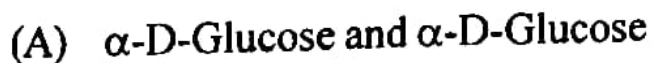
54) Which is the correct order of the basic strength of given amines?



55) Which diazonium salt is water insoluble and stable at room temperature?



56) Lactose is composed of which units?



(Space for Rough Work)

57) Which of the following gives Zwitter ion in its aqueous solution?

- (A) $\text{COOH}-\text{CH}_2-\text{COOH}$
- (B) $\text{NH}_2-\text{CH}_2-\text{COOH}$
- (C) $\text{NH}_2-\text{CH}_2-\text{CH}_2-\text{NH}_2$
- (D) $\text{CH}_3\text{CH}_2\text{NH}_2$

58) Deficiency of which vitamin is responsible for RBC deficient in haemoglobin?

- (A) Vitamin B_{12}
- (B) Vitamin B_6
- (C) Vitamin B_2
- (D) Vitamin B_1

59) Which of the following statement is incorrect for the structure of Nucleic acid?

- (A) Nucleotides are joined together by phosphodiester linkage
- (B) In DNA molecule, the sugar moiety is β -D-2-deoxyribose
- (C) A unit formed by the attachment of a base 1' position of sugar is known as nucleoside
- (D) RNA contains four bases adenine, guanine, cytosine and thymine

(Space for Rough Work)

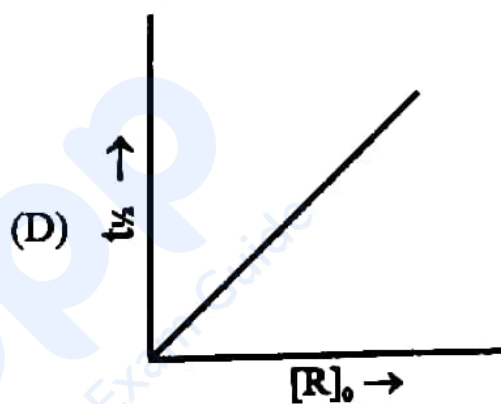
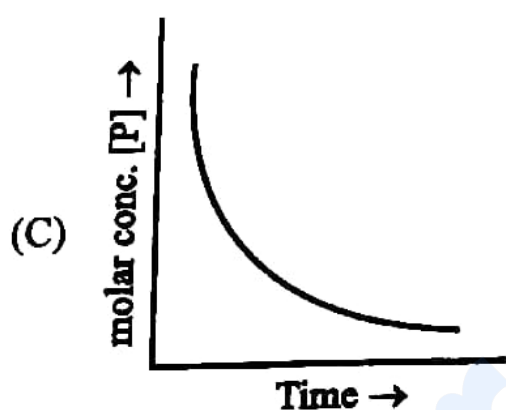
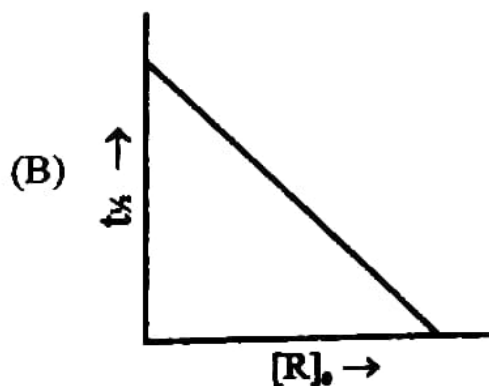
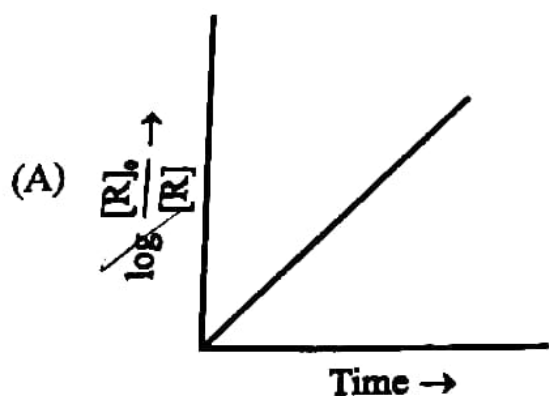
- 60) Calculate the mass of Glucose ($C_6H_{12}O_6$) required in making 2.5 kg of 0.25 molal aqueous solution.
[Atomic wt : H = 1, O = 16, C = 12 amu]
(A) 135.0 g (B) 107.65 g
(C) 90.0 g (D) 112.5 g
- 61) The vapour pressure of pure liquids 'P' and 'Q' are 450 and 750 mm of Hg respectively at 350 K. If total vapour pressure is 600 mm of Hg, the mole fractions of 'P' and 'Q' respectively will be _____ and _____.
(A) 0.7 and 0.3 (B) 0.4 and 0.6
(C) 0.6 and 0.4 (D) 0.5 and 0.5
- 62) The freezing point depression of 645 g of aqueous solution of ethylene glycol ($C_2H_6O_2$) is 2.25 K. Find weight of ethylene glycol in the solution.
[$K_f = 1.86 \text{ K kg mol}^{-1}$; H = 1, C = 12, O = 16 amu]
(A) 45.0 g (B) 42.50 g
(C) 48.375 g (D) 50 g
- 63) Van't Hoff factor (i) for dilute aqueous solution of $K_4[Fe(CN)_6]$, $Fe_4[Fe(CN)_6]_3$ and $[CoCl_2(en)_2]Cl_2$ are respectively _____, _____, _____.
(A) 2, 7, 5 (B) 2, 5, 7
(C) 5, 7, 2 (D) 7, 5, 2
- 64) Calculate the potential of hydrogen electrode in contact with a solution whose pH is 10.
(A) +0.059 V (B) -0.059 V
(C) +0.59 V (D) -0.59 V

(Space for Rough Work)

- 65) Which of the statements for solution of electrolyte is not correct?
- (A) Conductivity of solution depends on the concentration of electrolyte
 - (B) Conductivity of solution depends on the nature of electrolyte
 - ☒ (C) Conductivity of solution does not depend upon temperature
 - (D) Conductivity of solution depends on the nature of solvent and its viscosity
- 66) During the electrolysis of higher concentration of H_2SO_4 , the product obtained at anode is _____.
- (A) $\text{O}_{2(g)}$
 - (B) $\text{S}_2\text{O}_8^{2-}(aq)$
 - ☒ (C) $\text{SO}_{2(g)}$
 - (D) $\text{SO}_3^{2-}(aq)$
- 67) How much Faraday of electricity is required to reduce 1.5 mole KMnO_4 into Mn^{2+} in basic medium?
- ☒ (A) 4.5 F
 - (B) 7.5 F
 - (C) 6.0 F
 - (D) 3.0 F
- 68) For any reaction the rate constant $K = 2.3 \times 10^{-5} \text{ mol}^{-3/2} \text{ L}^{3/2} \text{ s}^{-1}$; then the order of reaction will be _____.
- (A) 0.0 (zero)
 - (B) 1.5
 - (C) 0.5
 - (D) 2.5
- 69) Which of the following statements is incorrect for a reaction carried out in presence of catalyst?
- (A) Potential energy of reactants and products change
 - (B) Equilibrium constant of the reaction does not change
 - ☒ (C) There is no change in Gibbs energy of the reaction
 - (D) The activation energy of the reaction decreases

(Space for Rough Work)

70) Which of the following graphs is correct for a first order reaction $R \rightarrow P$?



71) Reaction $2A \rightarrow B + 3C$ is zero order reaction. If $K = 3.5 \times 10^{-4} \text{ mol L}^{-1} \text{ S}^{-1}$; What will be the rate of production of 'C'?

(A) $1.167 \times 10^{-4} \text{ mol L}^{-1} \text{ S}^{-1}$

(B) $10.5 \times 10^{-4} \text{ mol L}^{-1} \text{ S}^{-1}$

(C) $3.5 \times 10^{-4} \text{ mol L}^{-1} \text{ S}^{-1}$

(D) $7.0 \times 10^{-4} \text{ mol L}^{-1} \text{ S}^{-1}$

(Space for Rough Work)

- 72) KMnO_4 acts as an oxidising agent in acidic medium. The number of moles of KMnO_4 that will be needed to react with one mole of sulphide ion in acidic solution is _____.
- (A) $1/5$ (B) $3/5$
(C) $4/5$ (D) $2/5$
- 73) Which one of the following is amphoteric oxide?
- (A) V_2O_3 (B) CrO
(C) Cr_2O_3 (D) CrO_3
- 74) Which of the following ion show highest spin only magnetic moment value?
- (A) Co^{2+} (B) Mn^{2+}
(C) Ti^{2+} (D) Fe^{2+}
- 75) Name the member of lanthanide series which is well known to exhibit + 4 oxidation state?
- (A) Cerium (B) Thulium
(C) Gadolinium (D) Samarium
- 76) Which one is the correct formula for coordination compound tris [ethane - 1, 2- diamine] cobalt (III) sulphate
- (A) $[\text{Co}(\text{en})_3]_3(\text{SO}_4)_2$ (B) $[\text{Co}(\text{en})_3]_2(\text{SO}_4)_3$
(C) $[\text{Co}(\text{en})_3](\text{SO}_4)_2$ (D) $[\text{Co}(\text{en})_3]\text{SO}_4$

(Space for Rough Work)

- 77) Hybridizations in $[\text{Ni}(\text{CO})_4]$ and $[\text{Ni}(\text{CN})_4]^{-2}$ are respectively _____.
- (A) sp^3 and dsp^2 (B) sp^3 and sp^3
(C) dsp^2 and sp^3 (D) dsp^2 and dsp^2
- 78) Identify the optically active compound from the following.
- (A) $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$ (B) $[\text{Co}(\text{NH}_3)_6]\text{Cl}_2$
(C) $[\text{Co}(\text{en})_3]\text{Cl}_3$ (D) $[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{Cl}$
- 79) In the complex $\text{K}[\text{Cr}(\text{H}_2\text{O})_2(\text{C}_2\text{O}_4)_2] \cdot 3\text{H}_2\text{O}$, oxidation state and co-ordination number of the central metal ion is _____ and _____.
- (A) +4, 4 (B) +3, 4
(C) +4, 6 (D) +3, 6
- 80) Which reagent will be used for the following reaction?
- $$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3 \xrightarrow{?} \text{CH}_3 - \text{CH}_2 - \text{CH}_2\text{CH}_2\text{Cl} + \text{CH}_3 - \text{CH}_2 - \underset{\text{Cl}}{\text{CH}} - \text{CH}_3$$
- (A) Cl_2 , air, Fe/dark (B) $\text{NaCl} + \text{H}_2\text{SO}_4$
(C) $\text{Cl}_2/\text{UV light}$ (D) Cl_2 , air/dark

(Space for Rough Work)