JEE Main 2026 April 5 Shift 2 Chemistry

Question Paper

Conducted by National Testing Agency (NTA)

General Instructions

(i) The test is of 3 hours duration.

(ii) This test paper consists of 75 questions. Each subject (PCM) has 25 questions. The maximum marks are 300.

(iii) This question paper contains Three Parts. Part-A is Physics, Part-B is Chemistry and Part-C is Mathematics. Each part has only two sections: Section-A and Section-B.

(iv) Section - A : Attempt all questions.

(v) Section - B : Attempt all questions.

(vi) Section - A (01 – 20) contains 20 multiple choice questions which have only one correct answer. Each question carries +4 marks for correct answer and –1 mark for wrong answer.

(vii) Section - B (21 – 25) contains 5 Numerical value based questions. The answer to each question should be rounded off to the nearest integer. Each question carries +4 marks for correct answer and –1 mark for wrong answer.

1. In 1 litre aqueous solution 20 g of Haemoglobin is present at 300 K. This solution has height difference of 80 mm, when separated from pure water through S.P.M. If density of solution is 1000 kg/m^3, then calculate molar mass of Haemoglobin in kg/mol. (Use : $g = 10$ m/s^2)

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2. For the reaction:

$$A(g) \rightleftharpoons B(g) + C(g)$$

Initial moles of A(g) is a. At equilibrium, x moles of A decompose at total pressure P. Calculate K_P for the given reaction.

(A) $\frac{x^2P}{a^2-x^2}$
(B) $\frac{x^2P}{a^2+x^2}$
(C) $\frac{2xP}{a^2-x^2}$
(D) $\frac{xP}{a^2-x^2}$

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3. Determine the order of molar heat capacity (C_m) of $Br_2(\ell)$, Cu(s) and He(g) at 298 K and 1 atm.

(A) $Br_2(\ell) > He(g) > Cu(s)$
(B) $Br_2(\ell) > Cu(s) > He(g)$
(C) $He(g) > Br_2(\ell) > Cu(s)$
(D) $Cu(s) > Br_2(\ell) > He(g)$

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4. 20 g Zn is treated with 50 ml, 50% (w/w) H_2SO_4 solution ($d = 1.3\,g/ml$). The volume of H_2 gas evolved at STP is:

(A) 6.81 L
(B) 7.22 L
(C) 3.4 L
(D) 1.46 L

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5. For the reaction $A \longrightarrow$ Product, the following graph is observed between half life ($t_{1/2}$) and initial concentration of A. Then find the value of x.

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6. For the given reaction:

$$X_2(g) + Y_2(g) \rightleftharpoons 2XY(g)$$

The following data table is provided at $600\,K$**:**

	$\Delta_f H\,(kJ/mol)$	$S_m\,(J\,K^{-1}\,mol^{-1})$
X_2	80	140
Y_2	8	250
XY	42	200

Calculate $\Delta_r G$ **at** $600\,K$**.**

(A) $-10\,kJ/mol$

(B) $-100\,kJ/mol$

(C) $-2\,kJ/mol$

(D) $+2\,kJ/mol$

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7. Silver rod is dipped in aqueous solution of $AgNO_3$ **of unknown concentration and Zn rod is dipped in** $1\,M\ ZnSO_4$ **aqueous solution. Both these containers are connected to form a galvanic cell showing emf of** $1.6\,V$**. Calculate the value of** $\log_{10}[Ag^+]$**.**

$E^\circ_{Ag^+/Ag(s)} = 0.8\,V \qquad E^\circ_{Zn^{2+}/Zn(s)} = -0.76\,V$

[Use $\dfrac{2.303RT}{F} = 0.059$**]**

(A) $\dfrac{5.9}{4}$

(B) $\dfrac{4}{5.9}$

(C) $\dfrac{2}{5.9}$

(D) $\dfrac{8}{5.9}$

8. Molar conductivity and conductance of an electrolytic solution are 123.5 Scm^2/mole and 0.19 S respectively. Concentration of solution is x% w/w, then find the value of x.

(cell constant = 1.3 S cm^{-1}; density of solution = 1 gm/ml; molar mass of electrolyte = 75 g/mole)

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9. For the complex ion with configurations d^3, d^4 (low spin), d^5 (high spin), d^7 (low spin) and d^6 (high spin), the total number of unpaired electrons is _____.

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10. Species "X" is dissolved in H_2SO_4 and reacts with SO_2 to give a green color solution. The species "X" is:

(A) $KMnO_4$

(B) $K_2Cr_2O_7$

(C) $Pb(CH_3COO)_2$

(D) KI

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11. Statement I : Aluminium reacts with excess of NaOH **to form** $[Al(OH)_6]^{3-}$

Statement II : For the complex $[Fe(H_2O)_6]^{3+}$ **:** $\left[\left(d_{xy}=d_{yz}=d_{zx}\right)<\left(d_{x^2-y^2}=d_{z^2}\right)\right]$

and for the complex $[FeCl_4]^{2-}$ **:** $\left[\left(d_{xy}=d_{yz}=d_{zx}\right)>\left(d_{x^2-y^2}=d_{z^2}\right)\right]$

(A) Both Statement I and Statement II are correct

(B) Statement I is correct but Statement II is incorrect.

(C) Statement I is incorrect but Statement II is correct.

(D) Both Statement I and Statement II are incorrect

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12. Statement I: Of the following set of oxides $[Al_2O_3, Cr_2O_3] : [CO, N_2O]; [Na_2O, V_2O_3]; [Cl_2O_7, Mn_2O_7]$**, the number of sets having the same nature of oxides (basic, acidic, neutral or amphoteric) are 4.**

Statement II: Of the given oxides $Na_2O, Al_2O_3, CO, Cl_2O_7$**, the most basic and acidic oxides are** Na_2O **and** Cl_2O_7**.**

Which of the following options is correct?

(A) Both Statement I and Statement II are correct.

(B) Statement I is correct, but Statement II is incorrect.

(C) Statement I is incorrect, but Statement II is correct.

(D) Both Statement I and Statement II are incorrect.

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13. Statement I: ClO_4^-, ICl_4^-, IBr_2^- are tetrahedral, square planar and linear respectively.

Statement II: $[Fe(CN)_6]^{4-}$ is d^2sp^3 hybridized.

(A) Both Statement I and Statement II are correct

(B) Statement I is correct but Statement II is incorrect

(C) Statement I is incorrect but Statement II is correct

(D) Both Statement I and Statement II are incorrect

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14. Consider the following statements.

(A) If two orbitals are having the same value of $n + l$, then the orbital having the lower value of n will have lower energy.

(B) If atomic number increases, then the energy of orbitals belonging to a particular shell increases.

(C) Among 4s, 5d, 6f and 5p orbitals, none of these orbitals have two radial nodes.

(D) Size of $2p_x$ orbital is less than $3p_x$ orbital.

Which of the following statements are correct?

(A) A and B are correct

(B) B and D are correct

(C) A and D are correct

(D) B and C are correct

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15. If r_A and r_B are the radii of elements A and B respectively. Element A and B are covalently bonded. What will be the bond length and total length of the molecule?

(A) $[r_A + r_B] : [2(r_A + r_B)]$

(B) $[r_A + r_B] : [(r_A + r_B)]$

(C) $\left[\frac{1}{2}(r_A + r_B)\right] : [(r_A + r_B)]$

(D) $\left[\frac{1}{2}(r_A + r_B)\right] : [2(r_A + r_B)]$

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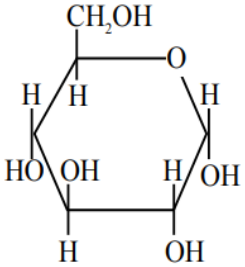
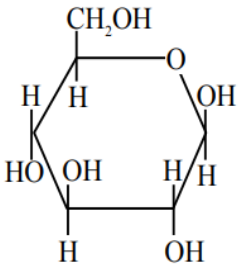
16. Statement-I: Glucose exists in two anomeric.

foms  and 

Statement-II: In open chain structure at C-3, C-4, C-5, glucose and fructose have identical configuration.

(A) Both Statement I and Statement II are correct

(B) Statement I is correct but Statement II is incorrect

(C) Statement I is incorrect but Statement II is correct

(D) Both Statement I and Statement II are incorrect

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17. Grignard reagent $RmgX$ reacts with water and releases a gas X which has volume 1.4 dm^3/g at 1 atm, 273 K.

X reacts with I_2 and forms Y which reacts with Na in the presence of dry ether to form Z. Find the molecular mass of Z.

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18. Statement-I: Benzamide on reaction with $Br_2 + NaOH$ gives benzyl amine.

Statement-II: On nitration of aniline, the meta product is formed more than the ortho product.

(A) Both Statement I and Statement II are correct

(B) Statement I is correct but Statement II is incorrect

(C) Statement I is incorrect but Statement II is correct

(D) Both Statement I and Statement II are incorrect

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19. Match the column

Column-I		Column-II	
(P)	Simple distillation	(1)	For steam volatile compound
(Q)	Fractional distillation	(2)	For liquid having nature of decompostion at it's B.P.
(R)	Steam distillation	(3)	Between two liquids having low difference in boiling point
(S)	Distillation under reduce presure	(4)	Between two liquids having high difference in boiling point

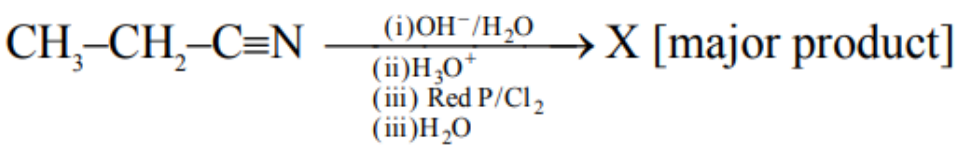
(A) P → 4, Q → 3, R → 1, S → 2

(B) P → 1, Q → 2, R → 3, S → 4

(C) P → 4, Q → 3, R → 2, S → 1

(D) P → 3, Q → 2, R → 1, S → 4

20.



IUPAC name of major product will be:

(A) 2-chloro propanoic acid

(B) 3-chloro propanoic acid

(C) Propanoyl chloride

(D) 2-hydroxy propanoic acid

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21. Which compound has total molecular mass of 72 with three primary carbons?

(A) n-Heptane

(B) 2,2-Dimethylbutane

(C) 1,1-Dimethylcyclopropane

(D) 2-Methylbutane

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22. Find stability order of the following alkenes:

(a) Cis-but-2-ene

(b) 2,3-Dimethylbut-2-ene

(c) 2-Methylbut-2-ene

(d) Propene

(A) b > a > d > c

(B) b > c > a > d

(C) a > c > b > d

(D) b > a > c > d

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23. Which of the following statement is incorrect regarding tertiary structure of protein?

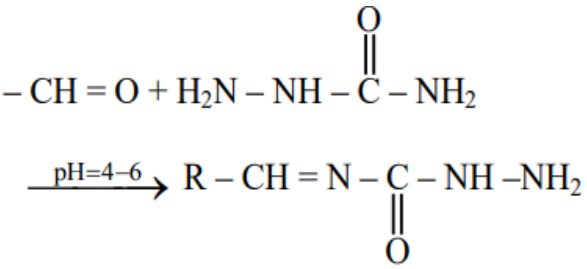
(A) With change in pH tertiary structure of protein does not get disrupted.

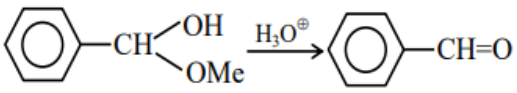
(B) Tertiary structure stabilized by H-bonding, disulphide linkage, Van der Waals forces and Coulombic forces.

(C) Tertiary structure is globular as well as fibrous.

(D) Amino acids which are connected to each other and oriented in folding form is related to tertiary structure.

24.

Statement-I : 

Statement-II : 

(A) Both Statement I and Statement II are correct

(B) Statement I is correct but Statement II is incorrect

(C) Statement I is incorrect but Statement II is correct

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