JEE Main 2026 April 6 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. $\mathbf{A}^{n_1^+} + n_1 e^- \rightarrow A_1$

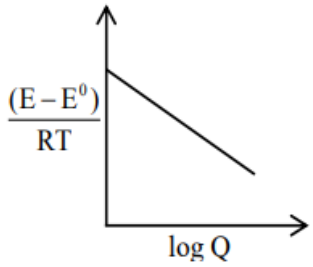
$A_2 \rightarrow A_2^{n_2^+} + n_2 e^-$

(A) Overall cell reaction:

$n_2 A_1^{n_1^+} + n_1 A_2 \rightarrow n_2 A_1 + n_1 A_2^{n_2^+}$

(B) Electrical work done by the cell = charge × potential difference.

(C)



$(E - E_0)\frac{}{RT\log Q(0)}$

(D) In the overall cell reaction, the number of electrons are not present, as electron liberated at anode, are consumed at cathode.

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2. For a certain decomposition

$$X_2Y_4(g) \rightleftharpoons 2XY_2(g)$$

Degree of dissociation of X_2Y_4 is 75% at 1 bar and 600K. Find ΔG° of reaction in kJ/mol^{-1}.

$$\text{Given} \left| \begin{array}{ll} \ell n\, 6 = & 1.7918 \\ \ell n\, 7 = & 1.9459 \\ R = & 8.314 \ \text{Jmol}^{-1}\text{K}^{-1} \end{array} \right|$$

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3. Total energy of Hydrogen like species is given as -54.4 eV/atom. The value of 'n' and 'Z' respectively are :

(A) 1,2

(B) 2,2

(C) 2,1

(D) 1,1

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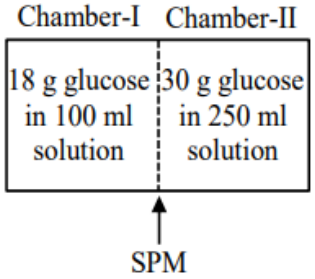
4. Consider given apparatus



(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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5. For 'C' molar solution of weak electrolyte A_xB_y, dissociation constant is K, then degree of dissociation of A_xB_y at equilibrium is

(A) $\left(\frac{K}{C^{x+y-1}x^x y^y}\right)^{\frac{1}{x+y}}$

(B) $\left(\frac{K \times C^{x+y-1}}{x^x - y^y}\right)^{\frac{1}{x+y}}$

(C) $\left(\frac{K \cdot x^x \cdot y^y}{C^{x+y-1}}\right)^{\frac{1}{x+y}}$

(D) $\left(\frac{K \times C^{x+y-1}}{x^x \times y^y}\right)^{x+y}$

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6. For a reaction rate constant (k) is given by

$$k = Ae^{\frac{-E_a}{RT}}$$

Calculate activation energy (E_a)

(A) 23.28 KJ/mol

(B) 56 KJ/mol

(C) 232.8 KJ/mol

(D) 5600 KJ/mol

7. Column-I (Isothermal process)

Column-I (Isothermal process)		Column-II	
(P)	Reversible expansion	(i)	$q = 0$
(Q)	Reversible cyclic process	(ii)	$q = nRT\ell n\left(\frac{V_2}{V_1}\right)$
(R)	Irreversible compression	(iii)	$W = -P_{ext}[V_2 - V_1]$
(S)	Free expansion	(iv)	$\frac{q_{rev}}{T} = 0$

(A) P-(ii); Q-(iv); R-(iii); S-(i)

(B) P-(iii); Q-(ii); R-(iv); S-(i)

(C) P-(iv); Q-(i); R-(ii); S-(iii)

(D) P-(i); Q-(iii); R-(ii); S-(iv)

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8. If the Bohr's radius of H-atom is 52.9 pm and radius of H-like species is 70.53 pm, then chemical species and orbit number are respectively.

(A) Li^{+2}, 3

(B) Li^{+2}, 2

(C) He^{+}, 3

(D) He^{+}, 2

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9. 0.2M, 500ml MnO_4^- solution is treated with 1.5M, 500ml KI solution in basic medium. The liberated I_2 required 'X'M, 300ml hypo solution. The value of 'X' is -

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10. Statement I: Of the following compounds SO_2, SO_3, H_2S, SF_4; only three compounds have a complete octet.

Statement II: For the given set of compounds $[SF_4, BrF_5, ClF_3], [NH_3, BrF_5, SF_4], [H_2O, IF_5, XeF_4]$ only one set of compounds has one lone pair on all central atoms.

(A) Both Statement I and Statement II are correct

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

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

(D) Both Statement I and Statement II are incorrect

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11. Consider the following ionization energy order

(A) IE_1: Cr > Mn

(B) IE_2: Cr < Mn

(C) IE_1: Cr < Mn

(D) IE_2: Cr > Mn

Correct order among the following:

(A) A and B

(B) B and C

(C) C and D

(D) A and D

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12. 'X' is the nitrogen containing compound which is added to freshly prepared $FeSO_4$ and dilute H_2SO_4 to form a brown ring complex 'Y'.
Identify X and Y.

(A) NO; $[Fe(NO)]SO_4$

(B) N_2O; $[Fe(N_2O)]SO_4$

(C) NO_2; $[Fe(NO_2)]SO_4$

(D) N_2O_4; $[Fe(N_2O_4)]SO_4$

13. Statement I: The bond angle order in OF_2, H_2O, OCl_2 is $OF_2 < H_2O < OCl_2$

Statement II: SiF_4, SnF_4, and PbF_4 are all ionic compounds.

(A) Both Statement I and Statement II are correct

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

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

(D) Both Statement I and Statement II are incorrect

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14. For the given coordination compounds:

(A) $[Ni(NH_3)_6]^{2+}$ is sp^3d^2, octahedral and paramagnetic.

(B) $[Ni(CO)_4]$ is sp^3, tetrahedral and paramagnetic.

(C) $[Ni(CN)_4]^{2-}$ is dsp^2, square planar and diamagnetic.

(D) $[NiCl_4]^{2-}$ is sp^3, tetrahedral and paramagnetic.

The correct set of coordination compounds against the mentioned properties is

(A) A, B and D

(B) B, C and D

(C) A, C and D

(D) A, B and C

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15. In a period, ionization energy of left most element is _____ and $|\Delta H_{eg}|$ value of right most element is _____. [Except noble gases]

(A) lowest, lowest

(B) lowest, highest

(C) highest, highest

(D) highest, lowest

16. If excess of $AgNO_3$ is added to 0.05M, 100ml of Tetraaquadichlorochromium(III) chloride complex aqueous solution, then the number of moles of AgCl precipitated is $x \times 10^{-3}$ moles. Find 'x'.

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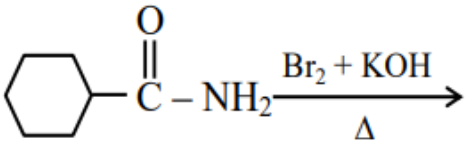
17. How many of the following reaction(s) product formed can also be prepared by Gabriel phthalimide synthesis:

(i) $Ph-\overset{\overset{O}{\|}}{C}-NH_2 \xrightarrow[\Delta]{Br_2 + KOH}$

(ii) $Ph-CH_2-\overset{\overset{O}{\|}}{C}-NH_2 \xrightarrow[\Delta]{Br_2 + KOH}$

(iii) $CH_3-\overset{\overset{O}{\|}}{C}-NH_2 \xrightarrow[\Delta]{Br_2 + KOH}$

(iv) $CH_3-\overset{\overset{O}{\|}}{C}-NH-CH_3 \xrightarrow[\Delta]{Br_2 + KOH}$

(v)  $\xrightarrow[\Delta]{Br_2 + KOH}$

(A) i, ii, iii

(B) ii, iii, iv

(C) ii, iii, v

(D) i, iii, v

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18. 1 mol of alkane (X) for complete combustion required 8 mol of oxygen. When it is brominated in presence of sunlight it gives only one product. How many primary carbons are present in alkane (X)?

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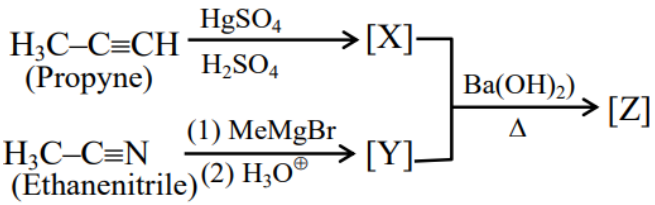
19. Give IUPAC name of the final product Z.



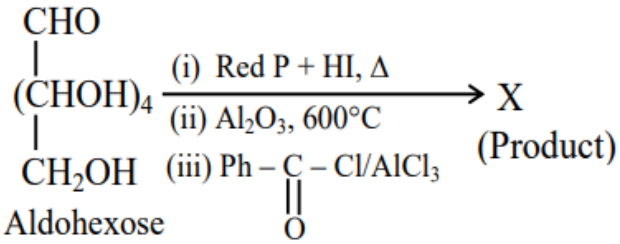
(A) Mesityl oxide

(B) 4-Methylpent-3-en-2-one

(C) 4,4-Dimethylbut-3-en-2-one

(D) 2-Methylpent-2-en-4-one

20.



Count the total number of electrons present in lone pair and π bond.

(A) 12

(B) 14

(C) 16

(D) 18

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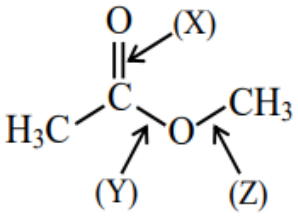
21. Compare the bond length X, Y and Z in the following compound



Where: (X) is the C=O bond, (Y) is the C-O bond between carbonyl group and oxygen, (Z) is the C-O bond between the oxygen and the methyl group.

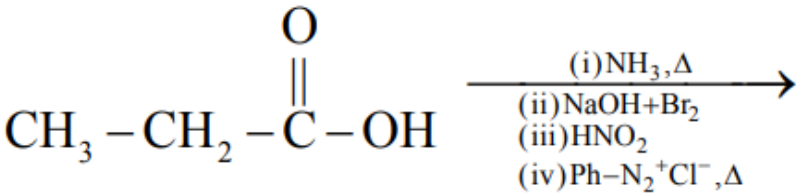
(A) X = Y = Z

(B) X = Y < Z

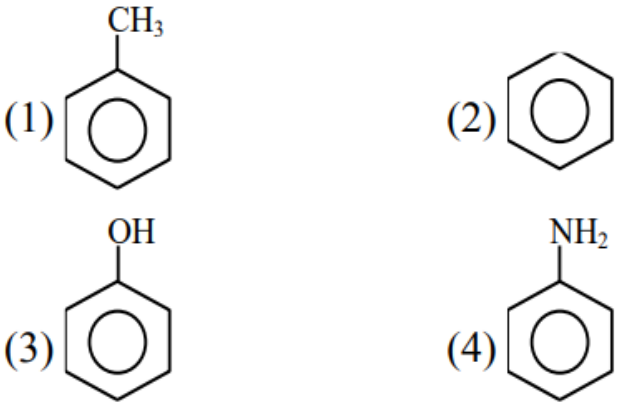
(C) X < Y < Z

(D) X < Y = Z

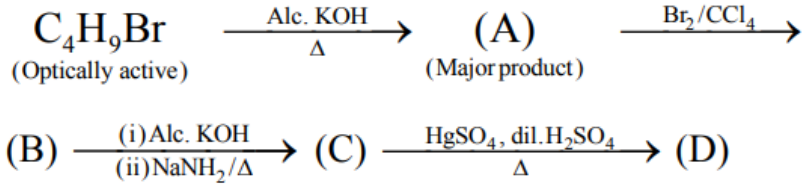
22.



Major product P:



23.



Which of the following test will give confirmation of functional group in (D)?

(A) Haloform test

(B) Benedict test

(C) Lucas test

(D) Tollen's test

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24. Statement I: Mixture of Sugar and NaCl is separated by using ethanol because of difference in their solubility.

Statement II: Rose essence from rose petals is separated by steam distillation because of its higher volatility and insolubility in H_2O.

(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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25. Statement - I: Ph-O-CH_2Ph $\xrightarrow[HI]{\Delta}$ Product is mixture of benzyl alcohol and iodobenzene.

Statement - II: Ph-O-CH_2Ph, O-CH_2 bond cleavage takes place during reaction with HI.

(A) Statement-I is incorrect and statement-II is correct

(B) Statement-I is correct and statement-II is incorrect

(C) Both statements are correct

(D) Both statements are incorrect
