JEE Main 2026 April 2 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. For first order reaction:

$2A(g) \rightarrow 4B(g) + C(g)$

Total pressure at $t = 30$ sec and $t = \infty$ are 300 torr and 600 torr respectively. Calculate pressure of C(g) at 30 sec (in torr).

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2. 'x' be the osmotic pressure of a solution formed by dissolving 1g of a protein (M = 50,000 g/mol) in 0.5 litre and 'y' be the osmotic pressure of solution formed by dissolving 2g of the same protein in 1 litre at 300 K. If 'z' be the osmotic pressure of solution formed by mixing

above two solutions. Then the value of 'x', 'y' and 'z' respectively are.

Use: $R = 0.083$ lit-bar/K-mol

(A) 9.96×10^{-4} bar, 9.96×10^{-4} bar, 4.48×10^{-4} bar
(B) 9.96×10^{-4} bar, 19.2×10^{-4} bar, 9.96×10^{-4} bar
(C) 19.2×10^{-4} bar, 19.2×10^{-4} bar, 19.2×10^{-4} bar
(D) 9.96×10^{-4} bar, 9.96×10^{-4} bar, 9.96×10^{-4} bar

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3. Molarity of $H_2SO_4(aq.)$ solution is 4.9 M. If the density of the solution is 1.40 g/mL, then molality and mole fraction of solute in the solution is:
(Molar mass of $H_2SO_4 = 98\,g/mole$)

(A) $m = 5.33$, $x_{\text{solute}} = 0.072$
(B) $m = 5.33$, $x_{\text{solute}} = 0.087$
(C) $m = 5.21$, $x_{\text{solute}} = 0.072$
(D) $m = 5.21$, $x_{\text{solute}} = 0.087$

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4. A metal of work function 2.3 eV is irradiated with radiation of wavelength $y \times 10^2$ nm. The maximum kinetic energy of ejected electron is 2.8×10^{-20} J. Then calculate y (in nearest integer).

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5. A hydrocarbon has mass ratio of C and H in 12 : 1.
Each molecule of hydrocarbon has 2 carbon atoms.
Calculate mass of CO_2 (in gm) produced, when 3.38 gm hydrocarbon undergoes combustion.

(A) 11.44
(B) 22.88

(C) 3.28

(D) 6.44

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6. A cell is formed using the below half-cell reactions, and the cell is working with 80% efficiency. Work obtained is utilized for isothermal expansion of gas against external pressure of 1 kPa. Find ΔV (in m^3).

$$\frac{1}{2}O_2 + 2H^+ + 2e^- \rightarrow H_2O;\ E^\circ = 1.23\,\text{V}$$

$$6H^+ + CO_2 + 6e^- \rightarrow CH_3OH + H_2O;\ E^\circ = 0.02\,\text{V}$$

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7. For process $X \rightarrow Y$, work done by the gas is 10 J and heat absorbed in the process is 2 J. For the reverse process, heat evolved is 6 J. Find the work done for the reverse process.

(A) Work done on the gas is 14 J

(B) Work done by the gas is 2 J

(C) Work done on the gas is 20 J

(D) Work done by the gas is 12 J

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8. For a reaction $xA \rightarrow yB$, $k = 0.3\,\text{M}^{-1}\text{sec}^{-1}$,

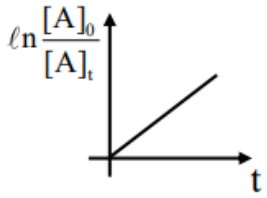
(i) If the concentration of A is made 4 times, then the rate of reaction becomes 16 times.

(ii) The decomposition of N_2O_5 is an example of this type of reaction.

(iii) The order of the reaction is 2.

(iv) A plot of $\ln\left(\frac{[A]_0}{[A]_t}\right)$ vs. t is a straight line.

(v) The half-life of the reaction is independent of the concentration of the reactant.



Which of the following options has the correct set of statements:

(A) (i), (ii), (v)

(B) (i), (iii)

(C) (iii), (iv), (v)

(D) (i), (iii), (v)

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9. 0.1 mole of H_2S is added in 1 liter of 0.1 HCl solution. Calculate the concentration of HS^-.
[Given $K_a1 = 8.3 \times 10^{-8}$ and $K_a2 = 10^{-13}$]

(A) 8.3×10^{-8} M

(B) 10^{-13} M

(C) 0.1 M

(D) 0.05 M

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10. 20 ml of 0.2 M HA ($K_a = 5 \times 10^{-4}$) is titrated with 10 ml of 0.2 M NaOH solution. Calculate the initial and final value of pH of the solution. [Given $\log 5 = 0.7$]

(A) 2, 3.3

(B) 1.65, 2

(C) 3.3, 2

(D) 2, 3.6

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11. How many of the following are paramagnetic:

Lu^{3+}, Yb^{2+}, Gd^{2+}, Ce^{4+}, La^{3+}, Zn^{2+}, Cu^{2+}, Mn^{2+}, Sc^{3+}, and Ti^{4+}

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12. Which of the following are iso-structural with SF_4?

(A) IF_4^+

(B) BrF_4^+

(C) XeO_2F_2

(D) CH_4

(E) XeF_4

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13. The correct set that contains all kinds of oxides (Basic, acidic, amphoteric, and neutral) is:

(A) Na_2O, N_2O, Al_2O_3, CO

(B) Al_2O_3, As_2O_3, CO, NO

(C) K_2O, Cl_2O_7, As_2O_3, NO

(D) Na_2O, K_2O, Al_2O_3, As_2O_3

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14. Statement 1: The correct order of 2nd ionization energy for boron family elements is: B > Al > Ga.

Statement 2: The correct order of 1st ionization energy for carbon family elements is: Si > Ge < Pb < Sn.

Choose the correct option:

(A) Both statement 1 and statement 2 are correct

(B) Statement 1 is correct and statement 2 is incorrect

(C) Statement 1 is incorrect and statement 2 is correct

(D) Both statement 1 and statement 2 are incorrect

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15. Which of the following compounds shows coordination isomerism?

(A) $[Fe(NH_3)_6][Co(CN)_6]$

(B) $[Cr(NH_3)_6][Co(CN)_6]$

(C) $[Co(NH_3)_6][Co(CN)_6]$

(D) $[Ag(NH_3)_2][Ag(CN)_2]$

(E) $[Fe(NH_3)_6][Cr(CN)_6]$

(A) A, B, C only

(B) A, B D only

(C) A, B, C E only

(D) D only

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16. Arrange the following complexes in increasing order of C.F.S.E. (Δ_0)

(a) $[Co(H_2O)_6]^{2+}$

(b) $[Co(H_2O)_6]^{3+}$

(c) $[Co(en)_3]^{3+}$

(A) $b > c > a$

(B) $c > a > b$

(C) $c > b > a$

(D) $a > b > c$

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17. Which of the ions show positive Borax Bead test and has the largest ionization energy:

(A) Zn^{2+}

(B) Fe^{3+}

(C) Fe^{2+}

(D) Co^{2+}

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18. Identify the code of amino acid and iodine derivative hormone in the given option.

Code	Hormone
(1) Y	Insuline
(2) T	Thyroxine
(3) Y	Thyroxine
(4) T	Insuline

(A) Y Insuline

(B) T Thyroxine

(C) Y Thyroxine

(D) T Insuline

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19. Organic compound (X) + KOH $\xrightarrow{H^+}$ gives product P having the same molar ratio of C : H : O. Identify product P.

(A) CH_2COH

OH

(B) CH_3COOH

(C) $CH_2 = CHCOOH$

(D) CH_3CCH_2OH

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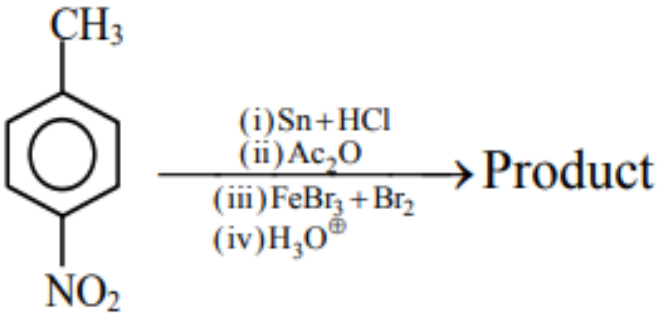
20. What will be the mass of AgBr obtained when 1 gm of product is treated with AgNO in the Carius method?



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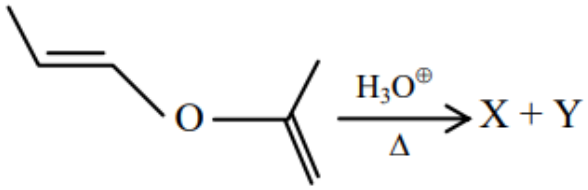
21. Correct statement about product X and Y



(a) They can be differentiated by $NaHCO_3$ test.

(b) They both gives 2,4-DNP test.

(c) They both have same molecular mass.

(d) They both react with same rate with HCN.

(A) Statement a and b are correct

(B) Statement b and c are correct

(C) Statement c and d are correct

(D) Statement a and d are correct

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22. Identify correct statement(s):

(i) Ar–Cl and R–Cl show similar chemical properties.

(ii) Rate of S_N^1 $C_6H_5CH_2\breve{}Cl < C_6H_5\breve{}CH\breve{}C_6H_5$

(iii) Alcohol is more polar than water, so alcoholic KOH shows elimination reaction.

(iv) Vinyl alcohol is an alkene, whereas allyl alcohol is an alkyne.

(v) Alcohol with SOC_2 gives alkyl halide, but phenol does not give.

(A) i, ii, iii statements are correct

(B) i, iii, iv statements are correct

(C) ii and v statements are correct

(D) i and iv statements are correct

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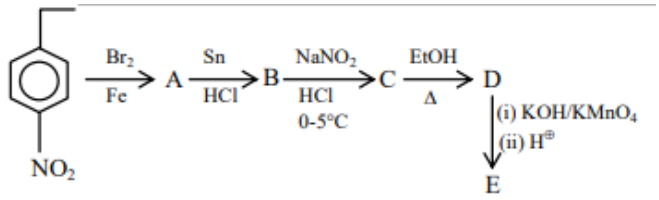
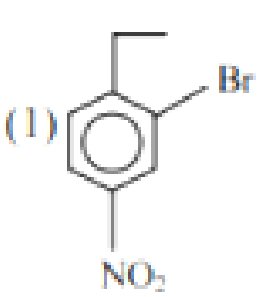
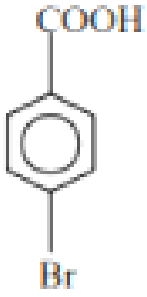
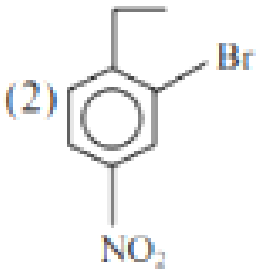
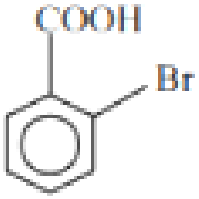
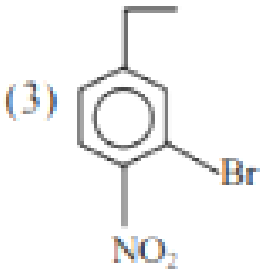
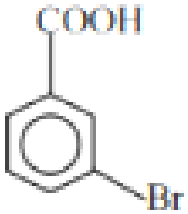
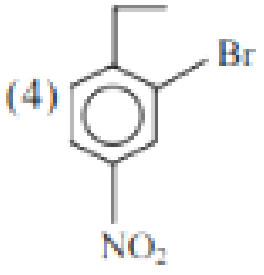
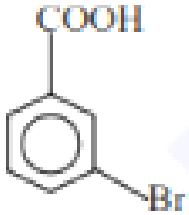
23. Identify A and E



(1)  & 

(2)  & 

(3)  & 

(4)  & 

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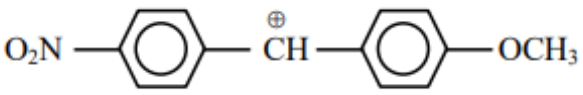
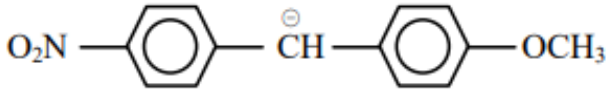
24. Statement I:



The carbocation in the structure O_2NCH is stabilized by the +R effect of the $-OCH_3$ group.

Statement II:



The carbocation in the structure O_2NCH is stabilized by the +R effect of the $-NO_2$ group.

(A) Both statement 1 and statement 2 are correct

(B) Statement 1 is correct and statement 2 is incorrect

(C) Statement 1 is incorrect and statement 2 is correct

(D) Both statement 1 and statement 2 are incorrect

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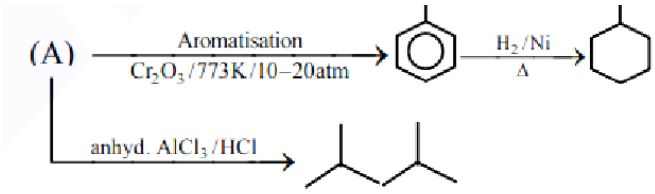
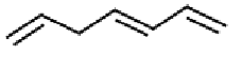
25. (A) is hydrocarbon



(1) 

(2) 

(3) 

(4)