CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 30

Chemistry

1. When the electron of a hydrogen atom jumps from the n=4 to the n=1 state , the number of all possible spectral lines emitted is :-

A. 9

B. 3

C. 6

D. 15

Answer: C

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2. The reaction that does NOT define calcination is :

A. $ZnCO_3 \xrightarrow{\Delta} ZnO + CO_2$

B. $Fe_2O_3.XH_2O \xrightarrow{\Delta} Fe_2O_3 + XH_2O$

C. $CaCO_3.MgCO_3 \xrightarrow{\Delta} CaO + MgO + 2CO_2$

D. $2Cu_2S + 3O_2 \xrightarrow{\Delta} 2Cu_2O + 2SO_2$

Answer: D

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3. The logarithm of the equilibriium constant of the cell reaction corresponding to the cell $X(s)\left|x^{2+}(aq)\right|\left|Y^{+}(aq)\right|Y(s)$ with standard cell potential $E_{cell}^{\circ}=1.2V$ given by

A. 40.2

B. 47.2

C. 12.5

D. 21.5

Answer: A

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4. If the half cell reactions are given as

(i) $Fe^{2+}(Aq) + 2e^- \rightarrow Fe(s), E^\circ = -0.44V$

(ii) $2H^+(sq) + \frac{1}{2}O_2(g) + 2e^- \rightarrow H_2O(l) E^\circ = +1.23V$

The E° for the reaction

$Fe(s) + 2H^+ + \frac{1}{2}O_2(g) \rightarrow Fe^{2+}(aq) + H_2O(l)$ will be

A. -0.79

B. $-1.67V$

C. $1.67V$

D. $0.79V$

Answer: C

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5. Among the following the surfactant that will from micelles in squeous solution at the lowest molar concentration at ambident condition is :

A. $CH_3(CH_2)_{15}N^+(CH_3)_3Br^-$

B. $CH_3(CH_2)_{11}OSO_3^-Na^+$

C. $CH_3(CH_2)_6COO^-Na^+$

D. $CH_3(CH_2)_{11}N^+(CH_3)_3Br^-$

Answer: A

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6. Identify the correct statements regarding the structure of $Al(BH_4)_3$.

1. Al is sp^3d^2 and B is sp^3 hybridized

2. It has 6 $3c-2e^-$ bonds

3. It has 6 Al - H - B bonds

4. It has 6 $2c-2e^-$ bonds.

A. only 1,3,4

B. only 1,2,3

C. only 1.24

D. all of 1, 2, 3 and 4

Answer: D

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7. 0.1 M NaCl and 0.05 M $BaCl_2$ solutions are separated by a semi-permeable membrane in a container. For this system,

choose the correct answer

A. Water flows form $BaCl_2$ solution towards NaCl solution

B. There is no movement of any solution across the membrane

C. Osmotic pressure of 0.1 M NaCl is lower than the osmotic pressure of $BaCl_2$ (Assume complete dissociation)

D. Water flows from NaCl solution towards $BaCl_2$ solution

Answer: A

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8. The increasing order of pKa of the following amino acids in aqueous solution is:

Gly Asp Lys Arg

A. $Asp < Gly < Arg < Lys$

B. $Arg < Lys < Gly < Asp$

C. $Gly < Asp < Arg < Lys$

D. $Asp < Gly < Lys < Arg$

Answer: D

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9. Four solutions of K_2SO_4 with the following concentration 0.1 m, 0.01 m, 0.001 m and 0.0001 m are available. The

maximum value of Van't Hoff factor (i) will be of:

A. 0.001 m solution

B. 0.0001 m solution

C. 0.1 m solution

D. 0.01 m solution

Answer: B

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10. The pH of a solution prepared by mixing 2.0 mL of HCl solution of pH 3.0 and 3.0 mL of NaOH of pH 10.0 is

A. 3.5

B. 2.5

C. 6.5

D. 5.5

Answer: A

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11. A photon of hard gamma radiations knocks out a proton for ${}_{12}^{24}Mg$ nucleaus to from:

A. The isotope of parent nucleus

B. The isobar of parent nucleus

C. The nuclide ${}_{11}^{23}Na$

D. The iosbar of ${}_{11}^{23}Na$

Answer: C

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12. The number of molecules in 100 mL of 0.02 N H_2SO_4 is

A. 6.02×10^{20}

B. 6.20×10^{26}

C. 6.02×10^{22}

D. 6.02×10^{21}

Answer: A

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13. A $KMnO_4$ solution can be standarised by titration against $As_2O_{3(s)}$. A $0.1156g$ sample of As_2O_3 requires $27.06mL$ of

the $KMnO_{4(aq.)}$ for its titration. What is the molarity of the $KMnO_{4(aq.)}$ [As $= 75$]?

$$5As_2O_3 + 4MnO_4^- + 9H_2O + 12H^+ \rightarrow 10H_3AsO_4 + 4Mn^{2+}$$

A. 0.0172 M

B. 1.0172 M

C. 0,172 M

D. 0.9172 M

Answer: A

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14. The correct match between item I and item II is

Item I	Item II
(1) Norethindrone	(P) Anti-biotic
(2) Ofloxacin	(Q) Anti-fertility
(3) Equanil	(R) Hypertension
	(S) Analgesics

A. $1-R, 2-P, 3-S$

B. $1-Q, 2-P, 3-R$

C. $1-S, 2-P, 3-R$

D. $1-Q, 2-R, 3-S$

Answer: B

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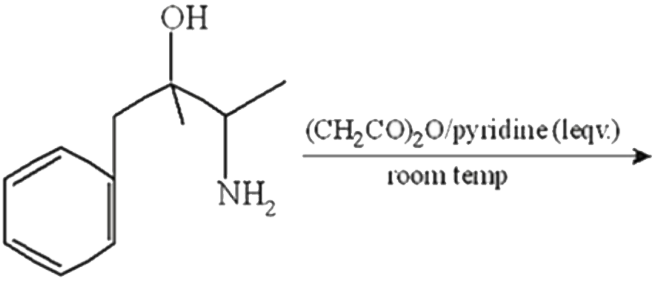
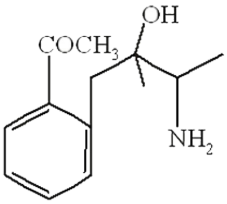
15. The major product obtained in the following reaction is



A.



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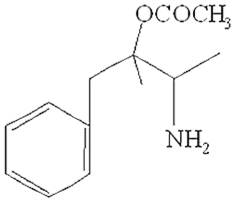
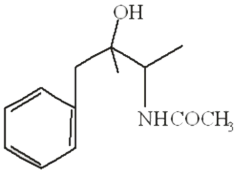
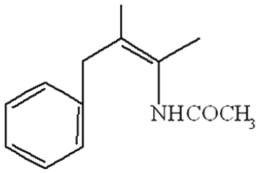


C.



D. 

Answer: C

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16. The K_{sp} of $Mg(OH)_2$ is 1×10^{-12}. $0.01 M Mg(OH)_2$ will precipitate at the limiting pH

A. 3

B. 9

C. 5

D. 8

Answer: B

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17. For the reaction, $AB(g) \Leftrightarrow A(g) + B(g)$, AB is $33\,\%$ dissociated at a total pressure of 'p' Therefore, 'p' is related to K_p by one of the following options

A. $P = 3K_p$

B. $p = K_p$

C. $P = 8K_p$

D. $P = 4K_p$

Answer: C

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18. The correct order of increasing hydration energy of the following conjugate bases of oxoacids of chlorine is

A. $ClO_4^- < ClO_3^- < ClO_2^- < ClO^-$

B. $ClO^- < ClO_2^- < ClO_3^- < ClO_4^-$

C. $ClO_3^- < ClO_4^- < ClO_2^- < ClO^-$

D. $ClO_4^- < ClO_3^- < ClO^- < ClO_2^-$

Answer: B

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19. A solid is formed by two elements P and Q . The element Q forms cubic close packing and atoms of P occupy one third of tetrahedral voids. The formula of the compound is

A. P_3Q

B. P_2Q_3

C. P_3Q_3

D. PQ_3

Answer: B

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20. Le-blanc process is employed in the manufacturing of

A. Baking soda

B. Caustic soda

C. Soda ash and potash

D. Plaster of Paris

Answer: C

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21. Which of the following have been arranged in the decreasing order of oxidation number of sulphur ?

A. $H_2SO_4 > SO_2 > H_2S > H_2S_2O_8$

B. $Na_2S_4O_6 > H_2S_2O_7 > Na_2S_2O_3 > S_8$

C. $H_2SO_5 > H_2SO_3 > SCl_2 > H_2$

D. $SO_2^{2+} > SO_4^{2-} > SO_3^{2-} > HSO_4^-$

Answer: C

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22. The degree of hardness of water is usually expressed in terms of

A. g/L of $CaCO_3$ and $MgCO_3$ present

B. ppm by weight of $MgSO_4$

C. ppm of $CaCO_3$ actually present in water

D. ppm by weight of $CaCO_3$ irrespective of whether it is actually present

Answer: D

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23. $AgCl$ dissolved in excess of NH_3, KCN and $Na_2S_2O_3$ solutions the complex produces ions

A. $[Ag(NH_3)_2]^{2+}$, $[Ag(CN)_2]^{3-}$ and $[Ag(S_2O_3)_2]^{2-}$

B. $[Ag(NH_3)_2]^{+}$, $[Ag(CN)_2]^{3-}$ and $[Ag(S_2O_3)_2]^{2-}$

C. $[Ag(NH_3)_2]^{+}$, $[Ag(CN)_2]^{-}$ and $[Ag(S_2O_3)_2]^{3-}$

D. $[Ag(NH_3)_4]^{2+}$, $[Ag(CN)_2]^{3-}$ and $[Ag(S_2O_3)_2]^{2-}$

Answer: C

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24. The maximum number of reducing hydrogens are contained in which of the following molecule/s ?

A. H_3PO_3

B. H_3PO_2

C. $H_4P_2O_7$

D. H_4PO_4

Answer: B

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25. The bond order of the N-O bonds in NO_3^- ion is

A. 1.33

B. 1.50

C. 1.00

D. 0.33

Answer: A

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26. Which of the following fluorides of Xe has zero dipole moment ?

A. XeF_3

B. XeF_4

C. XeF_6

D. XeF_2

Answer: B

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27. The hydrolysis of NCl_3 by H_2O produces

A. NH_2NH_2 and $HOCl$

B. NH_2OH and $HOCl$

C. NH_2Cl and $HOCl$

D. NH_4OH and $HOCl$

Answer: D

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28. Salt $A + S \rightarrow B \xrightarrow{BaCl_2}$ White precipitate A is paramagnetic in nature and contains about 55% K. Thus, A is

A. K_2O

B. K_2O_2

C. KO_2

D. K_2SO_4

Answer: C

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29. Among the following, the third ionisation energy is highest for

A. Aluminium

B. Beryllium

C. Boron

D. Magnesium

Answer: B

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30. The highest lattice energy corresponds to

A. SrO

B. BaO

C. MgO

D. CaO

Answer: C

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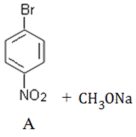
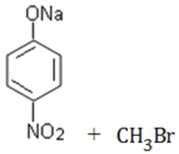
31. Which of the following is an appropriate set of reactants for the preparation of 1 methoxy - 4 nitrobenzene ?

A. 

B. 

B

C. Both A and B

D. None of these

Answer: C

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32. How is the following transformation best carried out?

A. $OsO_4 : NaHSO_3$

B. H_2SO_4 / H_2O

C. $HgSO_4 / H_2SO_4$

D. HIO_4

Answer: C

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33. Name the reagent used to bring about the following transformation, but-2-ene to ethanol:

A. CrO_2 / H_3O^+

B. $K_2Cr_2O_7$ in acidic medium

C. $O_3 / H_2O - Zn$ dust

D. PCC

Answer: C

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34. The stability order of the given carbocations is :

$i.\ Cl_3C - CH_2^{\oplus}$ $ii.\ F_3C - CH_2^{\oplus}$ $iii.\ H_3C - CH_2^{\oplus}$

A. i gt ii gt iii

B. iii gt i gt ii

C. iii gt ii gt i

D. ii gt iii gt i

Answer: B

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35. Arrange the following polymers in increasing order of their intermolecular forces :

(i) Nylon 6, 6

(ii) Buna-S

(iii) Polythene

A. I,II,III

B. II,III,I

C. II,I,III

D. III,II,I

Answer: B

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36. The pK_{a1} and pK_{a2} of an amino acid are 2.3 and 9.7 respectively. The isoelectric point of the amino acid is:

A. 7.4

B. 3.5

C. 12.0

D. 6.0

Answer: D

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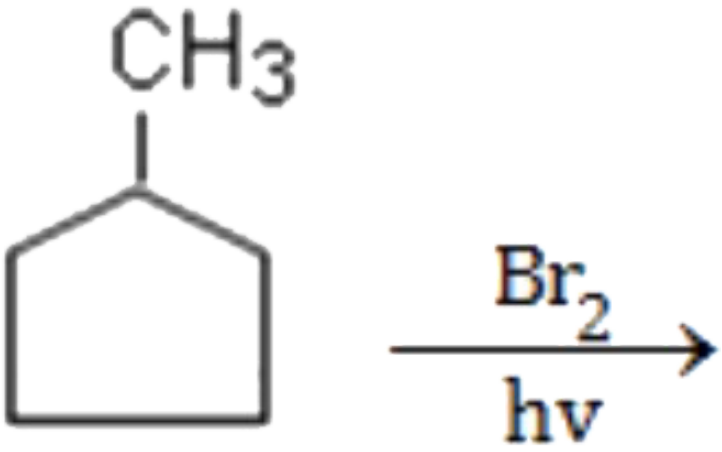
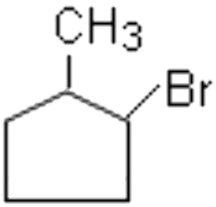
37. In the following reaction,

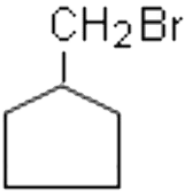


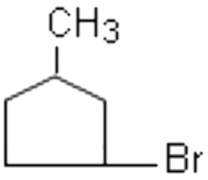
the major product obtained is

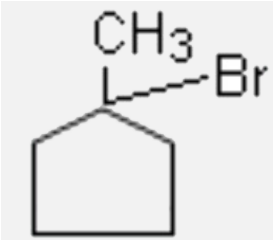
A.



B.



C. 

D. 

Answer: D

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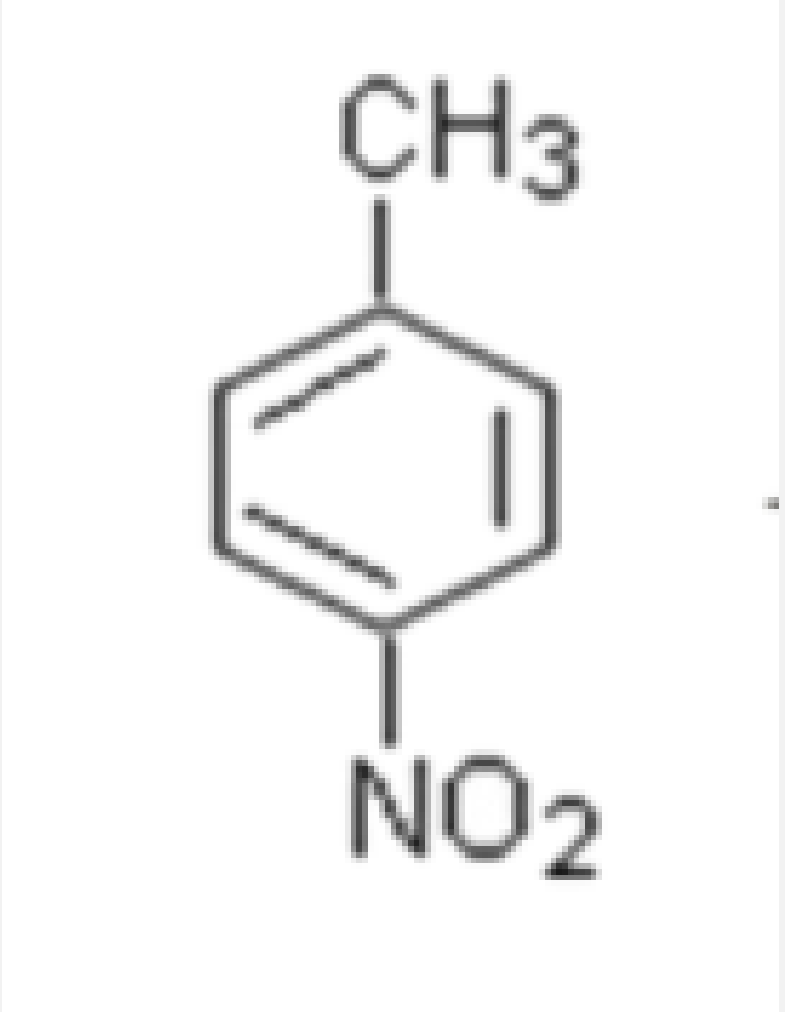
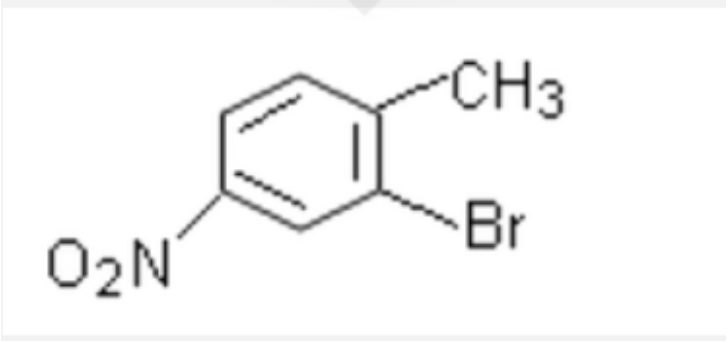
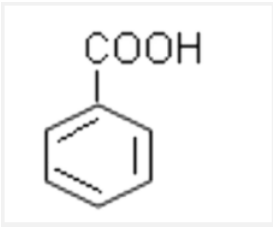
38. Identify the product (E) in the following sequence of reactions.

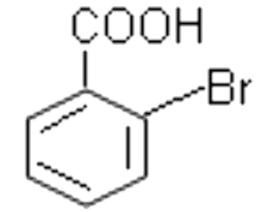


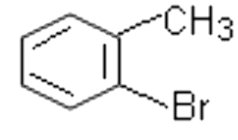
$$\xrightarrow{Br_2} A \xrightarrow{Sn\,/\,HCl} B \xrightarrow[273-278K]{NaNO_2\,/\,HCl} C \xrightarrow{H_2O\,/\,H_3PO_2}$$

$$D \xrightarrow[OH^-]{KMnO_4} E$$

A. 

B. 

C. 

D. 

Answer: C

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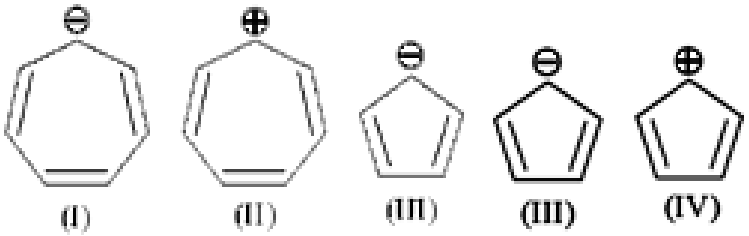
39. Which of the following species would be expected to exhibit aromatic character?



A. I and IV

B. II and IV

C. I and III

D. II and III

Answer: D

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40. For a zero order reaction, the plot of concentration versus time is linear with

A. Positive slope with zero intercept

B. positive slope with non-zero intercept

C. negative slope with non-zero intercept

D. parallel to time axis

Answer: C

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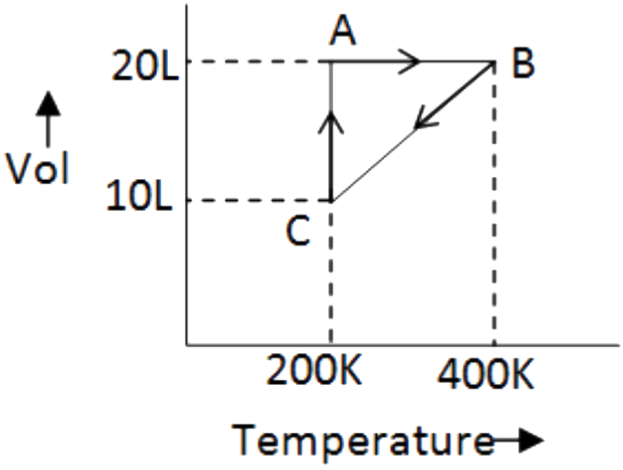
41. Find work done in the irreversible process $C \rightarrow A$.



Graph for one mole of an ideal gas

A. $4.51atm$

B. zero

C. 8.12 L atm

D. unpredictable

Answer: C

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42. The correct match between item 'I' and item 'ii' is

Item I (Compound)	**Item II (Reagent)**
(1) Lysine	(P) 1-naphthol
(2) Furfural	(Q) ninhydrin
(3) Benzyl alcohol	(R) $KMnO_4$
(4) Styrene	(S) Ceric ammonium Nitrate

A. 1 - Q, 2 - P, 3 - S, 4 - R

B. 1 - Q, 2 -R, 3 - S, 4 - P

C. 1 - Q, 2 -P, 3 - R, 4 - S

D. 1 - R, 2 -P, 3 - Q, 4 - S

Answer: A

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43. When acetaldehyde is treated with Fehling's solution , it gives a precipitate of

A. Cu

B. CuO

C. Cu_2O

D. $Cu + Cu_2O + CuO$

Answer: C

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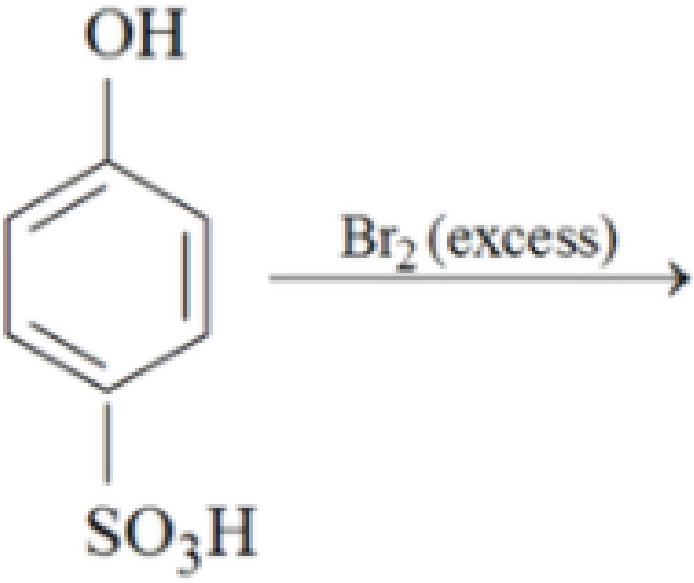
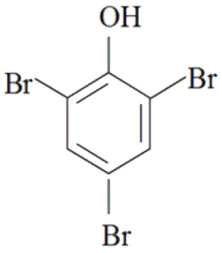
44. The major product of the following reaction is



A.



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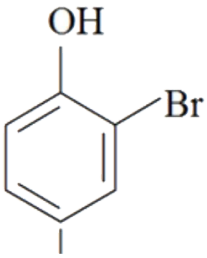
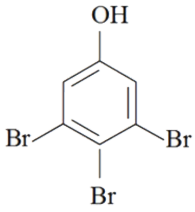
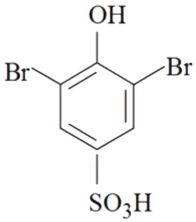


C.



D.



Answer: A

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45. Match the catalysts (Column I) with products (Column II)

Column I	Column II
(1) V_2O_5	(i) Polyethylene
(2) $TiCl_4/Al(Me)_3$	(ii) ethanal
(3) $PdCl_2$	(iii) H_2SO_4
(4) Iron Oxide	(iv) NH_3

A. (1) - (ii), (2) - (iii), 3 - (i), 4 - (iv)

B. (1) - (iii), (2) - (i), 3 - (ii), 4 - (iv)

C. (1) - (iii), (2) - (iv), 3 - (i), 4 - (ii)

D. (1) - (iv), (2) - (iii), 3 - (ii), 4 - (i)

Answer: B

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