

**JEE Main April 2026**  
**Question Paper With Text Solution**  
**05 April | Shift -1**

**CHEMISTRY**



**JEE Main & Advanced | XI-XII Foundation | VI-X Pre-Foundation**

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**JEE MAIN APRIL 2026 | 05 APRIL SHIFT-1****SECTION - A**

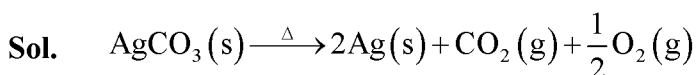
Question ID : 695278351

51. How many grams of residue is obtained by heating 2.76 g of silver carbonate?

(Given : Molar mass of C, O and Ag are 12, 16 and 108 g mol<sup>-1</sup> respectively)

☐

- (1) 1.08 g                      (2) 2.16 g                      (3) 3.24 g                      (4) 4.32 g

**Ans.** (2)

2.76 g

$$\frac{1}{100} \text{ mol}$$

$$\text{Moles of Ag}(s) = \frac{2}{100} \text{ mol}$$

$$\text{Mass of residue} = 2.16 \text{ g}$$

Question ID : 695278352

52. Arrange the following atomic orbitals of multi electron atoms in order of increasing energy.

A.  $n = 3, l = 2, m = +1$

B.  $n = 4, l = 0, m = 0$

C.  $n = 6, l = 1, m = 0$

D.  $n = 5, l = 1, m = +1$

E.  $n = 2, l = 1, m = +1$

Choose the correct answer from the options given below:

☐

(1)  $C < D < B < A < E$                       (2)  $B < A < E < C < D$

(3)  $E < C < D < B < A$                       (4)  $E < B < A < D < C$

**Ans.** (4)



- Sol.** A.  $n = 3, l = 2, m = +1$  3d  
 B.  $n = 4, l = 0, m = 0$  4s  
 C.  $n = 6, l = 1, m = 0$  6p  
 D.  $n = 5, l = 1, m = +1$  5p  
 E.  $n = 2, l = 1, m = +1$  2p

Increasing order of energy

$$2p < 4s < 3d < 5p < 6p$$

$$E < B < A < D < C$$

Question ID : 695278353

53. Identify the correct statements from the following :

- A. Heisenberg uncertainty principle is applicable to electrons.  
 B. The size of  $2p_x$  orbital is less than the size of  $3p_x$  orbital.  
 C. The energy of 2s orbital of H atom is equal to the energy of 2s orbital of Li .  
 D. The electronic configuration of Cr is  $[\text{Ar}]3d^5 4s^1$

Choose the correct answer from the options given below:

☐

- (1) A, B and C Only (2) A, B and D Only (3) B, C and D Only (4) A, C and D Only

**Ans.** (2)

**Sol.** Heisenberg uncertainty principle is valid for all microscopic particles.

The size of  $2p_x$  orbital is less than the size of  $3p_x$  orbital.

$$(E_{2s})_{\text{H}} \neq (E_{2s})_{\text{Li}} \quad (\text{Because } Z \text{ is diff.})$$



Question ID : 695278354

54. What is the mole fraction of water in 10 % by weight (w/w) of aqueous urea solution?

[Given: Molar mass of H,O,C and N are 1,16,12 and 14 g mol<sup>-1</sup> respectively.]

☐

- (1) 0.825 (2) 0.032 (3) 0.867 (4) 0.967

**Ans.** (4)

**Sol.** Mass ratio = mol ratio × GMM ratio

$$\frac{10}{90} = \frac{n}{N} \times \frac{60}{18}$$

$$\frac{n}{N} = \frac{1}{30}$$

$$x_{\text{H}_2\text{O}} = \frac{W}{n+N} = \frac{30}{31} = 0.967$$

Question ID : 695278355

55.  $M_3A_2$  is a sparingly soluble salt of molar mass  $y \text{ g mol}^{-1}$  and solubility  $x \text{ g L}^{-1}$ .

The ratio of the molar concentration of the anion ( $A^{-3}$ ) to the solubility product of the salt is

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(1)  $\frac{1}{54} \cdot \frac{y^4}{x^4}$

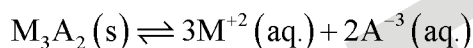
(2)  $\frac{y^5}{108x^4}$

(3)  $108 \cdot \frac{x^5}{y^5}$

(4)  $\frac{1}{108} \frac{y^4}{x^4}$

**Ans.** (1)

**Sol.**



Molarity	$\frac{x}{y}$	–	–
	–	3 x/y	2 x/y

$$K_{sp} = [M^{+2}]^3 [A^{-3}]^2$$

$$K_{sp} = \left[ \frac{3x}{y} \right]^3 \left[ \frac{2x}{y} \right]^2$$

$$\text{Ratio of } \frac{[A^{-3}]}{K_{sp}} = \frac{\frac{2x}{y}}{\left[ \frac{3x}{y} \right]^3 \left[ \frac{2x}{y} \right]^2}$$

$$= \frac{1}{54} \frac{y^4}{x^4}$$

Question ID : 695278356

56. Arrange the following resultant mixtures in increasing order of their pH values

A. 10 mL 0.2 M  $\text{Ca(OH)}_2$  + 25 mL 0.1 M HCl

B. 10 mL 0.01 M  $\text{H}_2\text{SO}_4$  + 10 mL 0.01 M  $\text{Ca(OH)}_2$

C. 10 mL 0.1 M  $\text{H}_2\text{SO}_4$  + 10 mL 0.1 M KOH

Choose the correct answer from the options given below:

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Question ID : 695278358

58. Given below are two statements:

**Statement I :** The correct order of electronegativity of fluorine, oxygen and nitrogen is  $F > O > N$ .**Statement II :** The oxidation state of oxygen in  $OF_2$  is +2 and in  $Na_2O$  is -2 .

In the light of the above statements, choose the correct answer from the options given below

¶

- (1) Both Statement I and Statement II are true  
(2) Both Statement I and Statement II are false  
(3) Statement I is true but Statement II is false  
(4) Statement I is false but Statement II is true

**Ans.** (1)**Sol.** Element                      Electronegativity

F                                      4.0

O                                      3.5

N                                      3.0

 $OF_2$  has "O" in +2 oxidation state $Na_2O$  has "O" in -2 oxidation state

Both are true

Question ID : 695278359

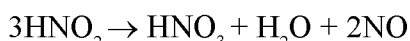
59. Correct statements from the following are:

- A. Nitrogen in oxidation states from +1 to +4 disproportionates in acid medium.  
B. Nitrogen has the ability to form  $d\pi - p\pi$  multiple bonds with itself and other elements with small size and high electronegativity.  
C. N-N single bond is stronger than P - P single bond.  
D. Nitrogen has highest density in its group due to small size.  
E. The maximum covalency of nitrogen is four since it has only four valence orbitals for bonding.

Choose the correct answer from the options given below:

¶

- (1) B, C and D Only    (2) C, D and E Only    (3) A, C and E Only    (4) A and E Only

**Ans.** (4)**Sol.** (A) In the case of nitrogen, all oxidation states from + 1 to +4 tend to disproportionate in acid solution.  
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- (B) Nitrogen form  $p_{\pi} - p_{\pi}$  bonds with itself and other elements with small size and high electronegativity,  $d_{\pi} - p_{\pi}$  is not possible with itself as it has no d-orbital.
- (C) The single N-N bond is weaker than the single P-P bond because of high interelectronic repulsion of the non-bonding electrons (lone pair), owing to the small bond length.
- (D) Nitrogen has lowest density in its group.
- (E) The maximum covalency of nitrogen is four.

Correct answer are (A) and (E)

Question ID : 695278360

60. Which of the following is NOT a physical or chemical characteristics of interstitial compounds?

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- (1) They have high melting points, higher than those of pure metals.
- (2) They are very soft and ionic in nature.
- (3) They retain metallic conductivity.
- (4) They are chemically inert and usually non-stoichiometric.

**Ans.** (2)

**Sol.** The physical and chemical characteristics of interstitial compounds are :

- (1) They have high melting points, higher than those of pure metals.
- (2) They are very hard, some borides approach diamond in hardness.
- (3) They retain metallic conductivity
- (4) They are chemically inert and usually non-stoichiometric.

Question ID : 695278361

61. The correct statements about metal carbonyls are

- A. The metal-carbon bonds in metal carbonyls possess both  $\sigma$  and  $\pi$  character.
- B. Due to synergic bonding interactions between metal and CO ligand, the metal-carbon bond becomes weak.
- C. The metal-carbon  $\sigma$  bond is formed by the donation of lone pair of electrons on the carbonyl carbon into a vacant orbital of metal.
- D. The metal-carbon  $\pi$  bond is formed by the donation of electrons from filled d-orbital of metal into vacant  $\pi^*$  orbital of CO.

Choose the correct answer from the options given below :

☐

- (1) A and B Only      (2) A, C and D Only      (3) B and C Only      (4) A and D Only



**Ans.** (2)

**Sol.** → The metal–carbon bonds in metals carbonyls possess both sigma and pi character due to synergic bonding.

→ Due to synergic bonding interactions between metals and CO ligand the metal–carbon bond becomes strong.

→ The metal–carbon  $\sigma$  bond is formed by the donation of lone pair of electrons on the carbonyl carbon into a vacant orbital of metal.

→ The metal–carbon  $\pi$  bond is formed by the donation of electrons from filled d-orbital of metal into vacant  $\pi^*$  orbital of CO.

Question ID : 695278362

62. Given below are two statements:

**Statement I :** Each electron in  $e_g$  orbitals destabilizes the orbitals by  $+0.6\Delta_0$  and each electron in the  $t_{2g}$  orbitals stabilizes the orbitals by  $-0.4\Delta_0$  in an octahedral field on the basis of crystal field theory.

**Statement II :** All the d - orbitals of the transition metals have the same energy in their free atomic state but when a complex is formed the ligands destroy the degeneracy of these orbitals on the basis of crystal field theory.

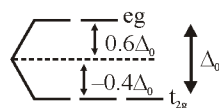
In the light of the above statements, choose the correct answer from the options given below

¶

- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

**Ans.** (1)

**Sol.** Each electron in  $e_g$  orbitals destabilizes the orbitals by  $+0.6\Delta_0$  and each electron in the  $t_{2g}$  orbitals stabilizes the orbitals by  $-0.4\Delta_0$  in an octahedral field on the basis of crystal field theory.



All the d-orbitals of the transition metals have the same energy in their free atomic state but when a complex is formed the ligands destroy the degeneracy of these orbitals on the basis of crystal field theory.

Question ID : 695278363

63. Given below are two statements:

**Statement I :** On the basis of inductive effect, the order of stability of alkyl carbanions is  $\text{CH}_3^- > \text{CH}_3 - \text{CH}_2^- > (\text{CH}_3)_2 \text{CH}^- > (\text{CH}_3)_3 \text{C}^-$ .

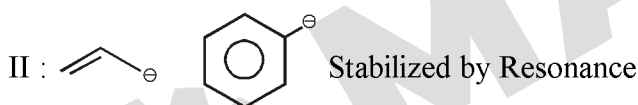
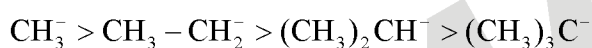
**Statement II :** Allyl and benzyl carbanions are more stabilised by inductive effect and not by resonance effect.

In the light of the above statements, choose the correct answer from the options given below

¶

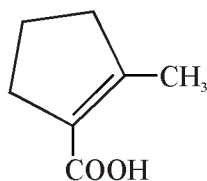
- (1) Both Statement I and Statement II are correct
- (2) Both Statement I and Statement II are incorrect
- (3) Statement I is correct but Statement II is incorrect
- (4) Statement I is incorrect but Statement II is correct

**Ans.** (3)

**Sol.** I : Stability of carbanion


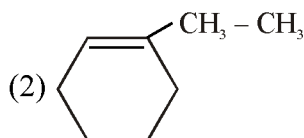
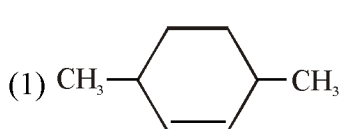
Question ID : 695278364

64. "P" is a hydrocarbon of molecular formula:-  $\text{C}_8\text{H}_{14}$ . On ozonolysis, "P" forms "Q". "Q" on treatment with alkali under reflux condition produces "R", which on treatment with  $\text{I}_2 / \text{NaOH}$  gives a yellow precipitate. Acidification of the solution gives "S". The structure of "S" is given below:-



The correct structure of "P" is

¶

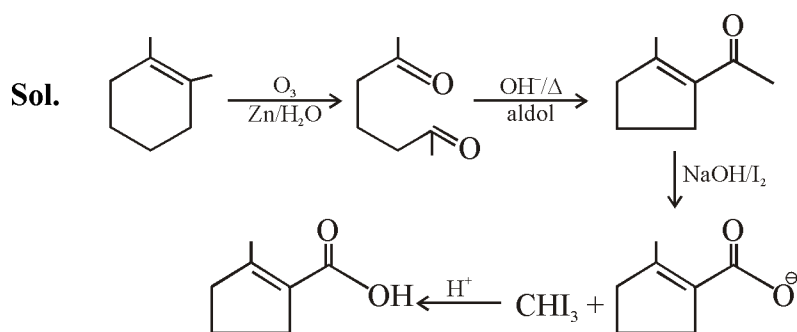

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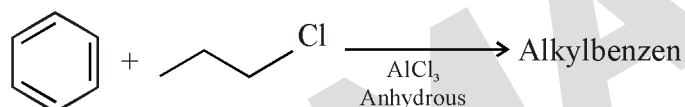


Ans. (4)



Question ID : 695278365

65. For the following Friedel Craft's alkylation reaction, which of the statements are correct?



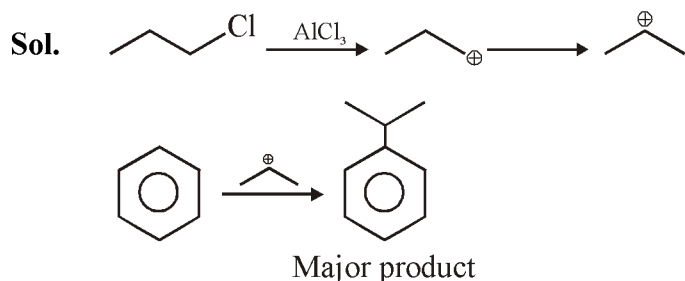
- A. Major product is n-propyl benzene.
- B. iso-propyl carbocation intermediate is also generated.
- C. Multiple substitution is inevitable.
- D. Introducing electron-donating substituent on benzene will not produce any alkyl benzene.

Choose the correct answer from the options given below:

¶

- (1) A and D only      (2) B and C only      (3) A and C only      (4) B and D only

Ans. (2)

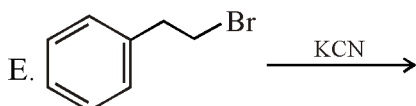
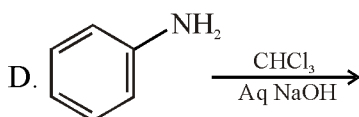
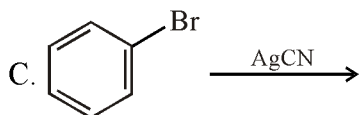
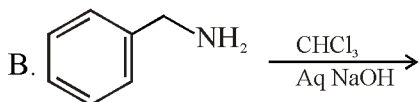
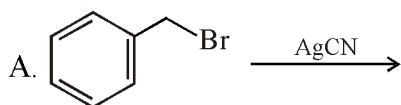


- B. iso-propyl carbocation intermediate is also generated
- C. Multiple substitution is inevitable.



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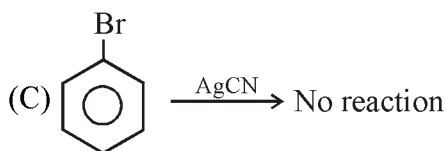
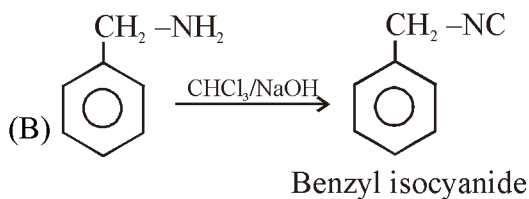
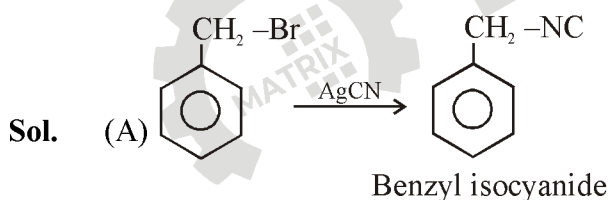
66. Benzyl isocyanide can be obtained from

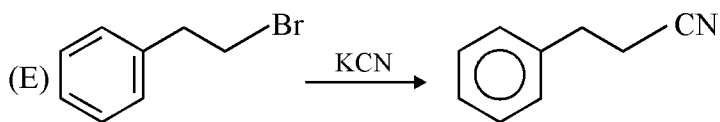
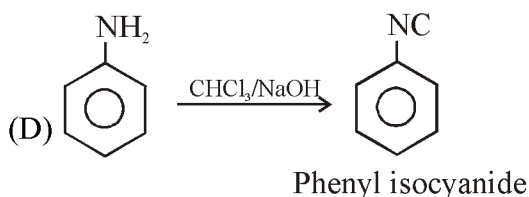


Choose the correct answer from the options given below:“

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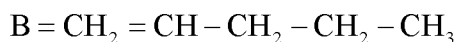
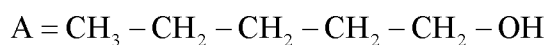
- (1) A and B Only      (2) A and C Only      (3) B and D Only      (4) D and E Only

**Ans.** (1)



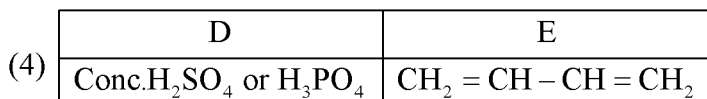
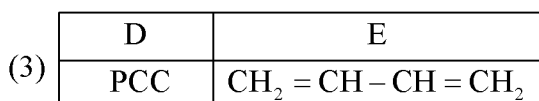
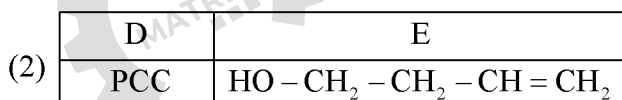
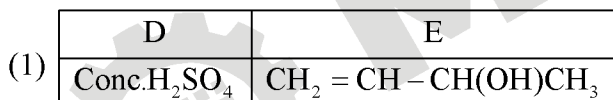
Question ID : 695278367

67. Consider compounds A, B and C with following structural formulae

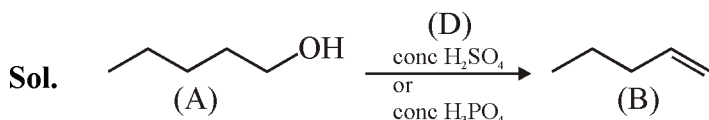


For the conversion of B from A, reagent (D) required is \_\_\_\_\_ and structural formula of product (E) obtained when C undergoes same reaction using excess reagent (D) is \_\_\_\_\_.

¶



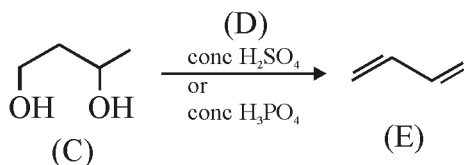
Ans. (4)



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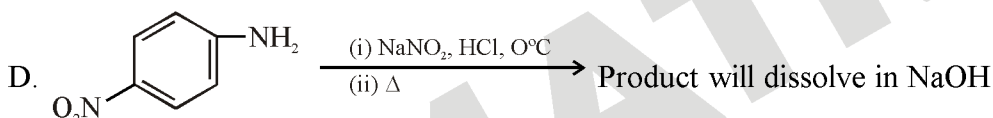
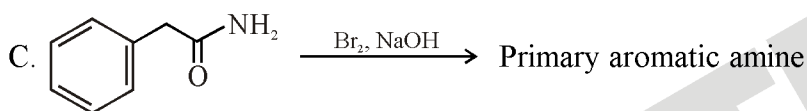
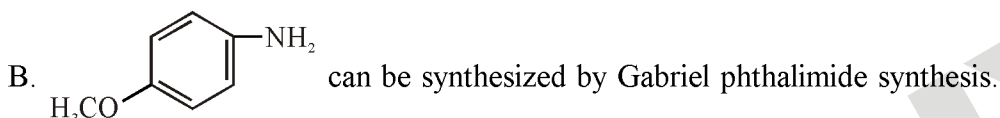
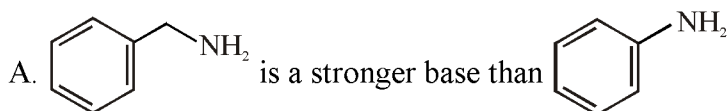
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Question ID : 695278368

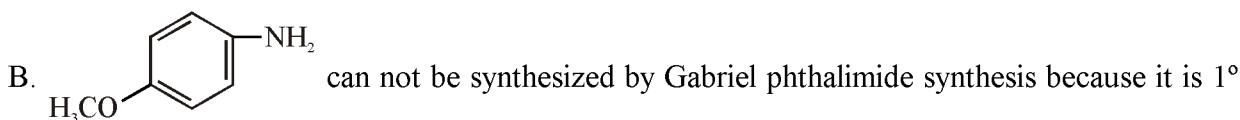
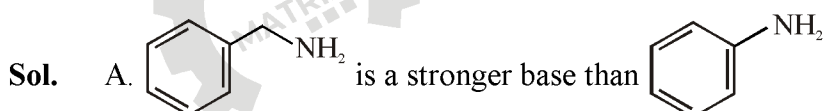
68. Identify the incorrect statements.



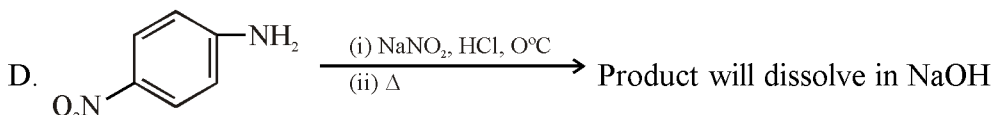
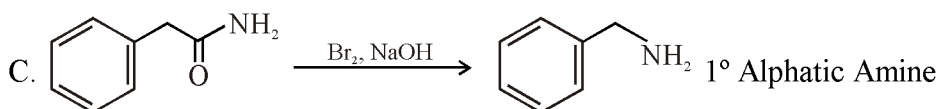
Choose the correct answer from the options given below:

¶

- (1) A and D Only      (2) A and C Only      (3) B and C Only      (4) A and B Only

**Ans.** (3)

Aromatic Amine

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Question ID : 695278369

69. Identify the correct statements.

- A. Glucose exists in two anomeric forms.  
 B. Anomers of glucose differ in configuration at C-1 in cyclic hemiacetal structure.  
 C. Melting point of  $\alpha$ -anomer of glucose is greater than  $\beta$ -anomer.  
 D. Specific rotation of  $\alpha$ -anomer is  $+19^\circ$  while for  $\beta$ -anomer is  $+112^\circ$   
 E.  $\alpha$  and  $\beta$ -anomers of glucose are prepared by crystallization of saturated glucose solution at 303 K and 371 K respectively.

Choose the correct answer from the options given below:

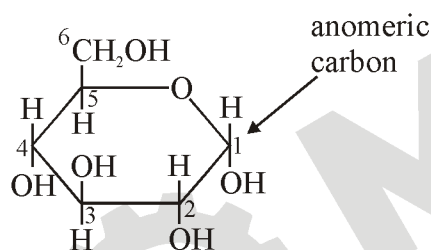
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- (1) A and B only      (2) B and C only      (3) A, B and D only      (4) A, B and E only

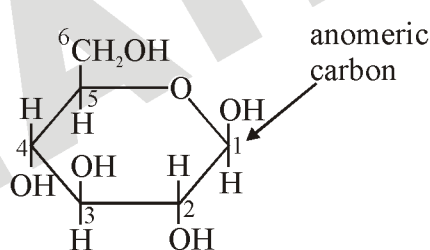
**Ans.** (4)

**Sol.** A. Glucose exist in two anomeric forms.

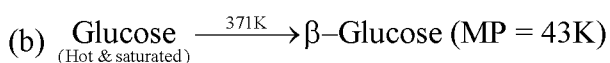
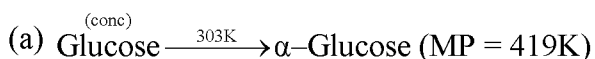
B. Anomers of glucose differ in configuration at C-1 in cyclic hemiacetal structure.



Specific rotation ( $112^\circ$ )  
 $\alpha$ -D-glucose  
 $\alpha$ -D-glucopyranose



Specific rotation ( $19^\circ$ )  
 $\beta$ -D-glucose  
 $\beta$ -D-glucopyranose

 Glucose is found to be exist in two different crustalline forms named as  $\alpha$  &  $\beta$ 


Question ID : 695278370

70. Given below are two statements:

**Statement I :** Sodium dichromate and potassium dichromate are classified as primary standards in titrimetric analysis.

**Statement II :** Phenolphthalein is a weak base, therefore it dissociates in acidic medium.

In the light of the above statements, choose the correct answer from the options given below

¶

- (1) Both Statement I and Statement II are true  
(2) Both Statement I and Statement II are false  
(3) Statement I is true but Statement II is false  
(4) Statement I is false but Statement II is true

**Ans.** (2)

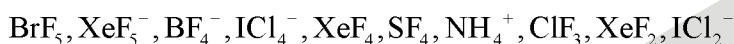
**Sol.**  $\text{Na}_2\text{Cr}_2\text{O}_7$  is hygroscopic in nature and is not used as primary standard.

Phenolphthalein is a weak acid, therefore it does not dissociate in the acidic medium and remains in the unionised form, which is colourless.

### SECTION – B

Question ID : 695278371

71. Consider the following species:



Number of species having  $sp^3d$  hybridized central atom is \_\_\_\_\_.

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**Ans.** (4)

**Sol.**  $\text{XeF}_4$  :  $sp^3d^2$

$\text{ICl}_4^-$  :  $sp^3d^2$

$\text{ICl}_2^-$  :  $sp^3d$

$\text{XeF}_5^-$  :  $sp^3d^3$

$\text{SF}_4$  :  $sp^3d$

$\text{XeF}_2$  :  $sp^3d$

$\text{ClF}_3$  :  $sp^3d$

$\text{BrF}_5$  :  $sp^3d^2$

$\text{NH}_4^+$  :  $sp^3$

Question ID : 695278372

72. In an estimation of sulphur by Carius method 0.2 g of the substance gave 0.6 g of  $\text{BaSO}_4$ . The percentage of sulphur in the substance is \_\_\_\_\_ %.

(Given molar mass in  $\text{gmol}^{-1}$  S : 32,  $\text{BaSO}_4$  : 231)

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**Ans.** (42)

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Sol. % of S =  $\frac{32}{231} \times \frac{\text{wt of BaSO}_4}{\text{wt of organic compound}} \times 100$

$$= \frac{32}{231} \left( \frac{0.6}{0.2} \right) \times 100 = 41.55$$

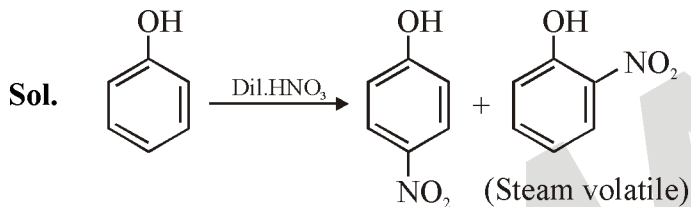
Question ID : 695278373

73. One mole of phenol is treated with dilute  $\text{HNO}_3$  at 298 K to give a mixture of products. The mixture is separated by steam distillation. The steam volatile compound (X) is separated. The increase in percentage of oxygen in (X) with respect to phenol is \_\_\_\_\_  $\times 10^{-1} \%$

(Given molar mass in  $\text{gmol}^{-1}$  H:1, C:12, N:14, O:16)

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Ans. (175)



$$\% \text{ oxygen in phenol} = \frac{16}{94} \times 100 = 17.02\%$$

$$\% \text{ oxygen in o-Nitrophenol (C}_6\text{H}_5\text{NO}_3\text{)}$$

$$\text{Molecular mass} = \text{C}_6\text{H}_5\text{NO}_3 = 139 \text{ g/m}$$

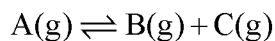
$$= \frac{48}{139} \times 100 = 34.53\%$$

$$\% \text{ increase} = (34.53 - 17.02) = 17.5$$

$$17.5 \times 10^{-1} = 175$$

Question ID : 695278374

74. The values of pressure equilibrium constant recorded at different temperatures for the following equilibrium reaction have been given below



$\frac{1}{T} (\text{K}^{-1})$	$\log_{10} K_p$
-------------------------------	-----------------

0.05	3.5
------	-----

0.06	2.5
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0.07

1.5

The magnitude of  $\frac{\Delta H^\circ}{R}$  calculated from the above data is \_\_\_\_\_. (Nearest integer)

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**Ans.** (230)**Sol.** Using formula

$$\log K_2 - \log K_1 = \frac{\Delta H}{2.303R} \left( \frac{1}{T_1} - \frac{1}{T_2} \right)$$

$$3.5 - 2.5 = \frac{\Delta H}{2.303R} (0.06 - 0.05)$$

$$\frac{\Delta H}{R} = \frac{2.303}{0.01}$$

$$\frac{\Delta H}{R} = 230.3$$

Question ID : 695278375

75. If the half life of a first order reaction is 6.93 minutes then the time required for completion of 99% of the reaction will be \_\_\_\_\_ minutes. (Given  $\log 2 = 0.3010$ )

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**Ans.** (46)

**Sol.**  $t_{1/2} = \frac{\ln 2}{K} \Rightarrow K_1 = \frac{0.693}{6.93} \Rightarrow 0.1 \text{ min}^{-1}$

$$t_{99\%} = \frac{1}{K} \ln \left[ \frac{A_0}{A_t} \right]$$

$$= \frac{1}{0.1} \ln \left[ \frac{100}{1} \right] \Rightarrow \frac{2 \ln 10}{0.1}$$

$$= \frac{2 \times 2.303}{0.1}$$

$$\Rightarrow 46.06 \text{ min}$$