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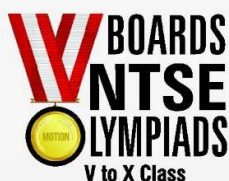
NEET

12th Sep. 2021

QUESTION PAPER
WITH
ANSWER



CHEMISTRY
CODE – P2



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SECTION - A

51. The incorrect statement among the following is :

- (1) Actinoids are highly reactive metals, especially when finely divided.
- (2) Actinoid contraction is greater for element to element than Lanthanoid contraction.
- (3) Most of the trivalent Lanthanoid ions are colorless in the solid state.
- (4) Lanthanoids are good conductors of heat and electricity.

Ans. 3

52. Given below are two statements:

Statement I:

Aspirin and Paracetamol belong to the class of narcotic analgesics.

Statement II:

Morphine and Heroin are non-narcotic analgesics. In the light of the above statements, choose the correct answer from the options given below.

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

Ans. 3

53. **Statement-I :**

Acid strength increases in the order given as $\text{HF} \ll \text{HCl} \ll \text{HBr} \ll \text{HI}$.

Statement II :

As the size of the elements F, Cl, Br, I increases down the group, the bond strength of HF, HCl, HBr and HI decreases and so the acid strength increases.

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

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

Ans. 2

54. Which one among the following is the correct option for right relationship between C_p and C_v for one mole of ideal gas?

- (1) $C_v = RC_p$
- (2) $C_p + C_v = R$
- (3) $C_p - C_v = R$
- (4) $C_p = RC_v$

Ans. 3

55. The correct option for the number of body centred unit cells in all 14 types of Bravais lattice unit cells is:

- (1) 3
- (2) 7
- (3) 5
- (4) 2

Ans. 1



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56. Among the following alkaline earth metal halides, one which is covalent and soluble in organic solvents is :

- (1) Beryllium chloride (2) Calcium chloride
(3) Strontium chloride (4) Magnesium chloride

Ans. 1

57. Tritium, a radioactive isotope of hydrogen, emits which of the following particles ?

- (1) Neutron (n) (2) Beta (β^-)
(3) Alpha (α) (4) Gamma (γ)

Ans. 2

58. The maximum temperature that can be achieved in blast furnace is :

- (1) upto 5000 K (2) upto 1200 K
(3) upto 2200 K (4) upto 1900 K

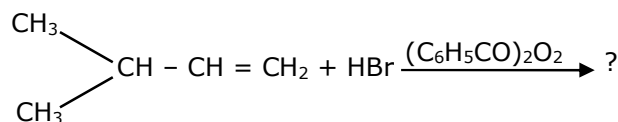
Ans. 3

59. BF_3 is planar and electron deficient compound. Hybridization and number of electrons around the central atom, respectively are :

- (1) sp^2 and 8 (2) sp^3 and 4
(3) sp^3 and 6 (4) sp^2 and 6

Ans. 4

60. The major product of the following chemical reaction is :



- (1) $\begin{array}{c} \text{CH}_3 \\ \diagdown \\ \text{CBr} - \text{CH}_2 - \text{CH}_3 \\ \diagup \\ \text{CH}_3 \end{array}$ (2) $\begin{array}{c} \text{CH}_3 \\ \diagdown \\ \text{CH} - \text{CH}_2 - \text{CH}_2 - \text{Br} \\ \diagup \\ \text{CH}_3 \end{array}$
(3) $\begin{array}{c} \text{CH}_3 \\ \diagdown \\ \text{CH} - \text{CH}_2 - \text{CH}_2 - \text{O} - \text{COC}_6\text{H}_5 \\ \diagup \\ \text{CH}_3 \end{array}$ (4) $\begin{array}{c} \text{CH}_3 \\ \diagdown \\ \text{CH} - \text{CH} - \text{CH}_3 \\ \diagup \quad | \\ \text{CH}_3 \quad \text{Br} \end{array}$

Ans. 2

61. The molar conductance of NaCl , HCl and CH_3COONa at infinite dilution are 126.45, 426.16 and $91.0 \text{ S cm}^2 \text{ mol}^{-1}$ respectively. The molar conductance of CH_3COOH at infinite dilution is. Choose the right option for your answer.

- (1) $540.48 \text{ S cm}^2 \text{ mol}^{-1}$ (2) $201.28 \text{ S cm}^2 \text{ mol}^{-1}$
(3) $390.71 \text{ S cm}^2 \text{ mol}^{-1}$ (4) $698.28 \text{ S cm}^2 \text{ mol}^{-1}$

Ans. 3

62. A particular station of All India Radio, New Delhi, broadcasts on a frequency of 1.368 kHz (kilohertz). The wavelength of the electromagnetic radiation emitted by the transmitter is : [speed of light, $c = 3.0 \times 10^8 \text{ ms}^{-1}$]

- (1) 21.92 cm (2) 219.3 m (3) 219.2 m (4) 2192 m

Ans. 2

63. Which of the following reactions is the metal displacement reaction ? Choose the right option.

- (1) $2\text{Pb}(\text{NO}_3)_2 \rightarrow 2\text{PbO} + 4\text{NO}_2 + \text{O}_2 \uparrow$ (2) $2\text{KClO}_3 \xrightarrow{\Delta} 2\text{KCl} + 3\text{O}_2$
(3) $\text{Cr}_2\text{O}_3 + 2\text{Al} \xrightarrow{\Delta} \text{Al}_2\text{O}_3 + 2\text{Cr}$ (4) $\text{Fe} + 2\text{HCl} \rightarrow \text{FeCl}_2 + \text{H}_2 \uparrow$

Ans. 3

64. The right option for the statement. "Tyndall effect is exhibited by". is:

- (1) Urea solution (2) NaCl solution
(3) Glucose solution (4) Starch solution

Ans. 4

65. The compound which shows metamerism is:

- (1) $\text{C}_4\text{H}_{10}\text{O}$ (2) C_5H_{12} (3) $\text{C}_3\text{H}_8\text{O}$ (4) $\text{C}_3\text{H}_6\text{O}$

Ans. 1

66. Match List I with List-II.

List-I

List-II

- | | |
|--------------------|---------------------------|
| (a) PCl_5 | (i) Square pyramidal |
| (b) SF_6 | (ii) Trigonal planar |
| (c) BrF_5 | (iii) Octahedral |
| (d) BF_3 | (iv) Trigonal bipyramidal |

Choose the correct answer from the options given below :

- (1) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
(2) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)
(3) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
(4) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

Ans. 2

67. Which one of the following polymers is prepared by addition polymerisation?

- (1) Dacron (2) Teflon (3) Nylon-66 (4) Novolac

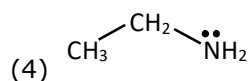
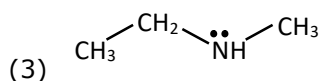
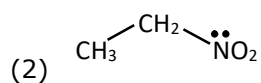
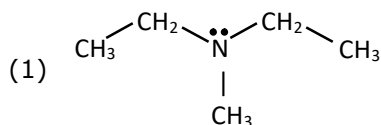
Ans. 2

68. The RBC deficiency is deficiency disease of:

- (1) Vitamin B₂ (2) Vitamin B₁₂ (3) Vitamin B₆ (4) Vitamin B₁

Ans. 2

69. Identify the compound that will react with Hinsberg's reagent to give a solid which dissolves in alkali.



Ans. 4

70. Zr(Z=40) and Hf(Z=72) have similar atomic and ionic radii because of :

- (1) having similar chemical properties
- (2) belonging to same group
- (3) diagonal relationship
- (4) lanthanoid contraction

Ans. 4

71. Ethylene diaminetetraacetate (EDTA) ion is :

- (1) Tridentate ligand with three "N" donor atoms
- (2) Hexadentate ligand with four "O" and two "N" donor atoms
- (3) Unidentate ligand
- (4) Bidentate ligand with two "N" donor atoms

Ans. 2

72. The major product formed in dehydrohalogenation reactions of 2-Bromo pentane is Pent-2-ene. This product formation is based on ?

- (1) Huckel's Rule
- (2) Saytzeff's Rule
- (3) Hund's Rule
- (4) Hofmann Rule

Ans. 2

73. An organic compound contains 78% (by wt.) carbon and remaining percentage of hydrogen. The right option for the empirical formula of this compound is: [Atomic wt. of C is 12, H is 1]

- (1) CH₄
- (2) CH
- (3) CH₂
- (4) CH₃

Ans. 4

74. The pK_b of dimethylamine and pK_a of acetic acid are 3.27 and 4.77 respectively at T(K). The correct option for the pH of dimethylammonium acetate solution is:

- (1) 6.25
- (2) 8.50
- (3) 5.50
- (4) 7.75

Ans. 4

75. The structure of beryllium chloride in solid state and vapour phase, are :

- (1) Chain in both
- (2) Chain and dimer, respectively
- (3) Linear in both
- (4) Dimer and Linear, respectively

Ans. 2

76. Which one of the following methods can be used to obtain highly pure metal which is liquid at room temperature?

- (1) Zone refining
- (2) Electrolysis
- (3) Chromatography
- (4) Distillation

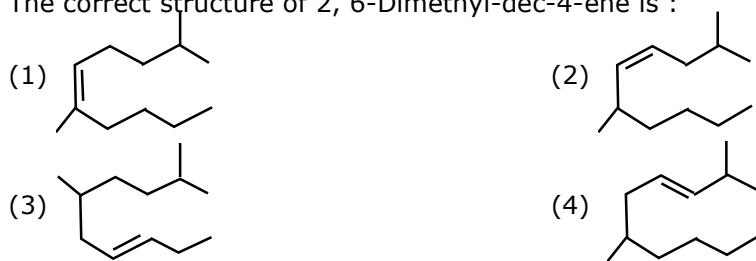
Ans. 1

77. Right option for the number of tetrahedral and octahedral voids in hexagonal primitive unit cell are :

- (1) 12, 6
- (2) 8, 4
- (3) 6, 12
- (4) 2, 1

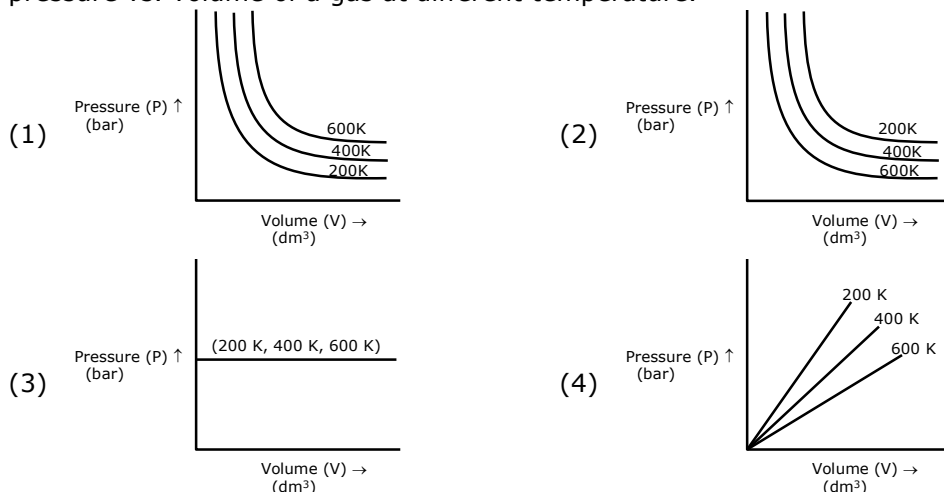
Ans. 1

78. The correct structure of 2, 6-Dimethyl-dec-4-ene is :



Ans. 2

79. Choose the correct option for graphical representation of Boyle's law, which shows a graph of pressure vs. volume of a gas at different temperature.



Ans. 1

80. The following solutions were prepared by dissolving 10g of glucose ($C_6H_{12}O_6$) in 250 ml of water (P_1), 10 g of urea (CH_4N_2O) in 250 ml of water (P_2) and 10 g of sucrose ($C_{12}H_{22}O_{11}$) in 250 ml of water (P_3). The right option for the decreasing order of osmotic pressure of these solution is:

- (1) $P_3 > P_1 > P_2$ (2) $P_2 > P_1 > P_3$
 (3) $P_1 > P_2 > P_3$ (4) $P_2 > P_3 > P_1$

Ans. 2

81. The correct sequence of bond enthalpy of 'C-X' and is

- (1) $CH_3 - Cl > CH_3 - F > CH_3 - Br > CH_3 - I$
 (2) $CH_3 - F < CH_3 - Cl < CH_3 - Br < CH_3 - I$
 (3) $CH_3 - F > CH_3 - Cl > CH_3 - Br > CH_3 - I$
 (4) $CH_3 - F < CH_3 - Cl > CH_3 - Br > CH_3 - I$

Ans. 3

82. Dihedral angle of least stable conformer of ethane is :

- (1) 0° (2) 120° (3) 180° (4) 60°

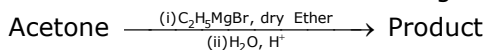
Ans. 1

83. Noble gases are named because of their inertness towards reactivity. Identify an incorrect statement about them.

- (1) Noble gases have large positive values of electron gain enthalpy.
 (2) Noble gases are sparingly soluble in water.
 (3) Noble gases have very high melting and boiling points.
 (4) Noble gases have weak dispersion forces.

Ans. 3

84. What is the IUPAC name of the organic compound formed in the following chemical reaction?



(1) 2-methyl butan-2-ol

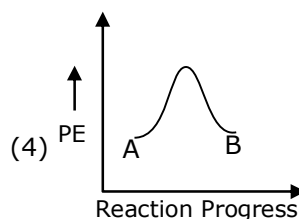
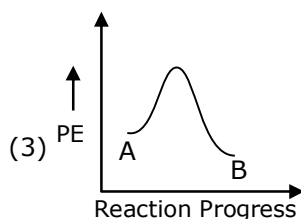
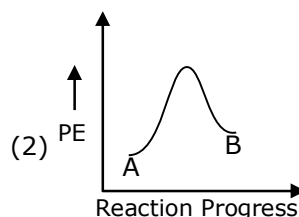
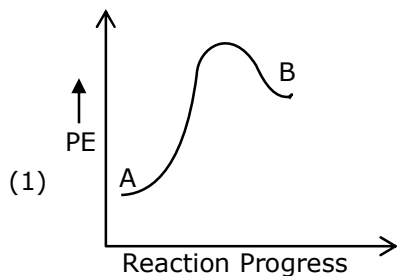
(2) 2-methyl propan-2-ol

(3) pentan-2-ol

(4) pentan-3-ol

Ans. 1

85. For a reaction $A \rightarrow B$, enthalpy of reaction is -4.2 kJ mol^{-1} and enthalpy of activation is 9.6 kJ mol^{-1} . The correction potential energy profile for the reaction is shown in option.

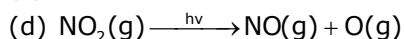
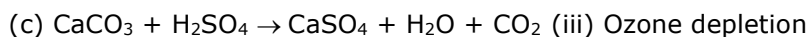
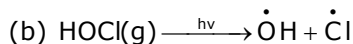
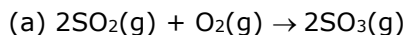


Ans. 3

SECTION - B

86. Match List-I with List-II.

List-I



List-II

(i) Acid rain

(ii) Smog

(iii) Ozone depletion

(iv) Tropospheric pollution

Choose the correct answer from the options given below.

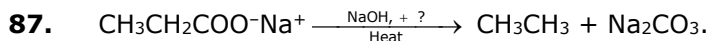
(1) (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)

(2) (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)

(3) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)

(4) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)

Ans. 4



Consider the above reaction and identify the missing reagent/chemical.

(1) DIBAL-H

(2) B_2H_6

(3) Red Phosphorus

(4) CaO

Ans. 4

88. The correct option for the value of vapour pressure of a solution at 45°C with benzene to octane in molar ratio 3 : 2 is :

[At 45°C vapour pressure of benzene is 280 mm Hg and that of octane is 420 mm Hg. Assume Ideal gas]

(1) 350 mm of Hg

(2) 160 mm of Hg

(3) 168 mm of Hg

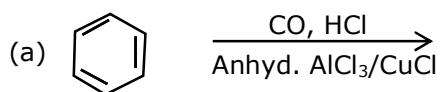
(4) 336 mm of Hg

Ans. 4

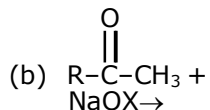
89. Match List-I with List-II

List-I

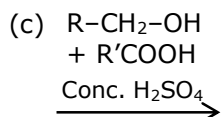
List-II



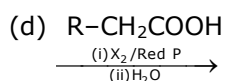
(i) Hell-Volhard-Zelinsky reaction



(ii) Gattermann-Koch reaction



(iii) Haloform reaction



(iv) Esterification

Choose the correct answer from the options given below :

(1) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)

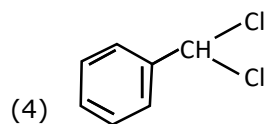
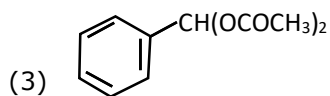
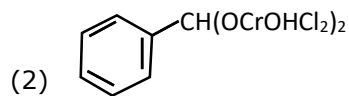
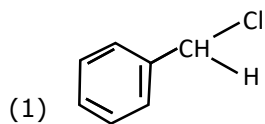
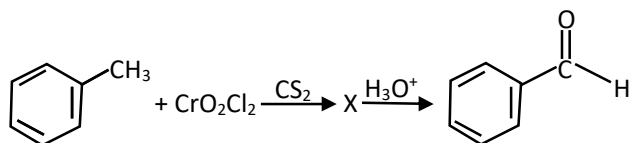
(2) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)

(3) (a)-(iii), (b)-(ii), (c)-(i), (d)-(iv)

(4) (a)-(i), (b)-(iv), (c)-(iii), (d)-(ii)

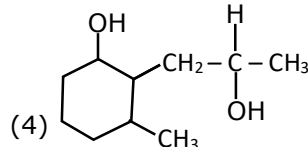
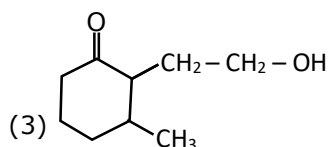
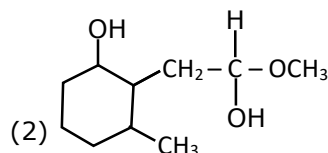
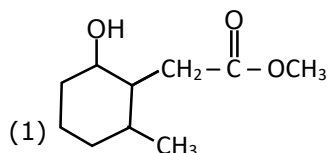
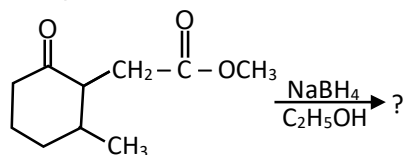
Ans. 1

90. The intermediate compound 'X' in the following chemical reaction is :



Ans. 2

91. The product formed in the following chemical reaction is:



Ans. 1

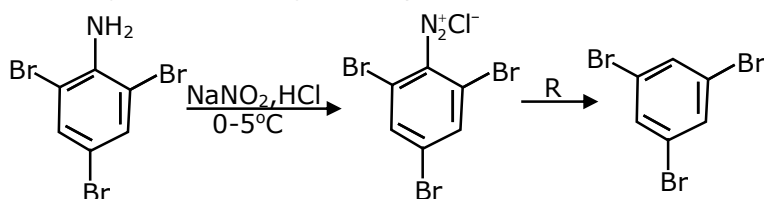
92. The slope of Arrhenius Plot $\left(\ln K / \text{vs } \frac{1}{T}\right)$ of first order reaction is $-5 \times 10^3 \text{ K}$. The value of E_a of the reaction is. Choose the correct option for your answer.

[Given $R = 8.314 \text{ JK}^{-1}\text{mol}^{-1}$]

- (1) -83 kJ mol^{-1} (2) 41.5 kJ mol^{-1} (3) 83.0 kJ mol^{-1} (4) 166 kJ mol^{-1}

Ans. 2

93. The reagent 'R' in the given sequence of chemical reaction is :



(1) CuCN/KCN

(2) H_2O

(3) $\text{CH}_3\text{CH}_2\text{OH}$

(4) HI

Ans. 3

94. For irreversible expansion of an ideal gas under isothermal condition, the correct option is :

(1) $\Delta U \neq 0, \Delta S_{\text{total}} = 0$

(2) $\Delta U = 0, \Delta S_{\text{total}} = 0$

(3) $\Delta U \neq 0, \Delta S_{\text{total}} \neq 0$

(4) $\Delta U = 0, \Delta S_{\text{total}} \neq 0$

Ans. 4

95. From the following pairs of ions which one is not an iso-electronic pair ?

(1) $\text{Fe}^{2+}, \text{Mn}^{2+}$

(2) $\text{O}^{2-}, \text{F}^-$

(3) $\text{Na}^+, \text{Mg}^{2+}$

(4) $\text{Mn}^{2+}, \text{Fe}^{3+}$

Ans. 1

96. The molar conductivity of 0.007 M acetic acid is $20 \text{ Scm}^2\text{mol}^{-1}$. What is the dissociation constant of acetic acid? Choose the correct option.

$$\left[\begin{array}{l} \Lambda_{\text{H}^+}^\circ = 350 \text{ Scm}^2 \text{mol}^{-1} \\ \Lambda_{\text{CH}_3\text{COO}^-}^\circ = 50 \text{ Scm}^2 \text{mol}^{-1} \end{array} \right]$$

(1) $2.50 \times 10^{-5} \text{ mol L}^{-1}$

(2) $1.75 \times 10^{-4} \text{ mol L}^{-1}$

(3) $2.50 \times 10^{-4} \text{ mol L}^{-1}$

(4) $1.75 \times 10^{-5} \text{ mol L}^{-1}$

Ans. 4

97. Which of the following molecules is non-polar in nature?

- (1) NO_2 (2) POCl_3 (3) CH_2O (4) SbCl_5

Ans. 4

98. Match List – I with List – II.

List – I

- (a) $[\text{Fe}(\text{CN})_6]^{3-}$
(b) $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$
(c) $[\text{Fe}(\text{CN})_6]^{4-}$
(d) $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$

List – II

- (i) 5.92 BM
(ii) 0 BM
(iii) 4.90 BM
(i) 1.73 BM

Choose the correct answer from the options given below.

- (1) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
(2) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)
(3) (a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)
(4) (a)-(i), (b)-(iii), (c)-(iv), (d)-(ii)

Ans. 1

99. Choose the correct option for the total pressure (in atm.) in a mixture of 4g O_2 and 2g H_2 confined in a total volume of one litre at 0°C is :

[Given $R = 0.82 \text{ L atm mol}^{-1} \text{ K}^{-1}$, $T = 273 \text{ K}$]

- (1) 26.02 (2) 2.518
(3) 2.602 (4) 25.18

Ans. 4

100. In which one of the following arrangements the given sequence is not strictly according to the properties indicated against it?

- | | |
|---|-----------------------------------|
| (1) $\text{CO}_2 < \text{SiO}_2 < \text{SnO}_2 < \text{PbO}_2$ | : Increasing oxidizing power |
| (2) $\text{HF} < \text{HCl} < \text{HBr} < \text{HI}$ | : Increasing acidic strength |
| (3) $\text{H}_2\text{O} < \text{H}_2\text{S} < \text{H}_2\text{Se} < \text{H}_2\text{Te}$ | : Increasing pK_a values |
| (4) $\text{NH}_3 < \text{PH}_3 < \text{AsH}_3 < \text{SbH}_3$ | : Increasing acidic character |

Ans. 3

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Nitin Vijay (NV Sir)
Managing Director
Exp. : 18 yrs



Lalit Vijay (LV Sir)
Deputy Director
Exp. : 19 yrs



Ashish Bajpai (AB Sir)
Deputy Director
Exp. : 19 yrs



Dr. Ashish Maheshwari (AM Sir)
Deputy Director
Exp. : 21 yrs



Jitendra Chandwani (JC Sir)
Deputy Director
Exp. : 19 yrs



G. S. Tiwari (GST Sir)
Sr. Faculty
Exp. : 20 yrs

Academic Pillars of NEET Motion Kota



Amit Verma (AV Sir)
Joint Director
Exp. : 16 yrs



Harmeet S. Bindra (Harmeet Sir)
Sr. Faculty
Exp. : 25 yrs



Renu Singh (RNS Ma'am)
Sr. Faculty
Exp. : 18 yrs



Shantanu Gupta (SG Sir)
Sr. Faculty
Exp. : 11 yrs



Kranti Deep Jain (KD Sir)
Sr. Faculty
Exp. : 21 yrs



Rakesh Saini (RSN Sir)
Sr. Faculty
Exp. : 16 yrs



Bharat Bhushan (Bharat Sir)
Sr. Faculty
Exp. : 11 yrs



Pranay Lahoty (PL Sir)
Sr. Faculty
Exp. : 8 yrs



Harshit Thakuria (HT Sir)
Sr. Faculty
Exp. : 11 yrs



Dr. Deepak Garg (Deepak Sir)
Sr. Faculty
Exp. : 6 yrs



Dr. Sudesh K. Gupta (SKG Sir)
Sr. Faculty
Exp. : 10 yrs



S. K. Yadav (SKY Sir)
Sr. Faculty
Exp. : 9 yrs



Sanjeev Kumar (Sanjeev Sir)
Sr. Faculty
Exp. : 8 yrs



Pramod Pottar (Pramod Sir)
Sr. Faculty
Exp. : 7 yrs



Zeeshan Hussain (ZH Sir)
Sr. Faculty
Exp. : 8 yrs



Pawan Vijay (PV Sir)
Sr. Faculty
Exp. : 5 yrs



Sarthak Maurya (SM Sir)
Sr. Faculty
Exp. : 6 yrs

Top Results mentored by above faculties

**NEET
AIIMS**

AIR-1 to 10

25 Times

AIR -11 to 25

37 Times

AIR -26 to 50

43 Times

AIR -51 to 100

78 Times

Most Consistent Selection % Ratio

Total Student Qualified in 2018
1706 / 1891 = **90.21%**

Total Student Qualified in 2019
2041 / 2212 = **92.27%**

Total Student Qualified in 2020
2663 / 2843 = **93.66%**

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