



## CHEMISTRY

# BOOKS - NEET PREVIOUS YEAR (YEARWISE + CHAPTERWISE)

## NEET 2021

### Question

1. Statement 1: Aspirin and paracetamol belong to the class of narcotic analgesics.

Statement 2: Morphine and Heroine are non-narcotic analgesics.

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

- A. Statement 1 is Correct, Statement 2 is False.
- B. Statement 1 is incorrect, Statement 2 is true.
- C. Both Statement 1 and Statement 2 are true
- D. Both Statement 1 and Statement 2 are false

**Answer:**



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2.  $\text{Zr}(Z=40)$  and  $\text{Hf}(Z=72)$  have similar atomic and ionic radii because of:

- A. lanthanoid contraction
- B. having similar chemical properties
- C. belonging to same group
- D. diagonal relationship

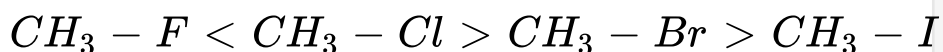
**Answer:**



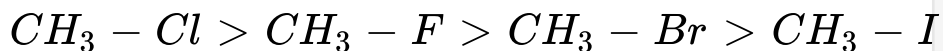
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**3.** The correct sequence of bond enthalpy of C-X bond is:

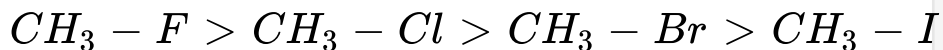
A.



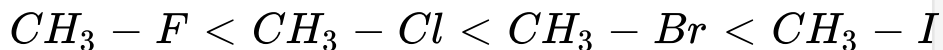
B.



C.



D.



**Answer:**



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**4.** Ethylene diaminetetraacetate(EDTA) ion is:

- A. Bidentate ligand with two "N" donor atoms
- B. Tridentate ligand with three "N" donor atoms
- C. Hexadentate ligand with four "O" and two "N" donor atoms
- D. Unidentate ligand

**Answer:**



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

A.  $sp^2$  and 6

B.  $sp^2$  and 8

C.  $sp^3$  and 4

D.  $sp^3$  and 6

**Answer:**



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6. A particular station of All India Radio, New Delhi, broadcasts on a frequency of 1,368 kHz. The wavelength of the electromagnetic radiation emitted by the transmitter is: (speed of light,  $c = 3.0 \times 10^8 \text{ ms}^{-1}$ )

A. 2192m

B. 21.92m

C. 219.3m

D. 219.2m

**Answer:**



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7. Match the following columns

Match List - I with List - II.

List - I		List - II	
(a)	$\text{PCl}_5$	(i)	Square pyramidal
(b)	$\text{SF}_6$	(ii)	Trigonal planar
(c)	$\text{BrF}_3$	(iii)	Octahedral
(d)	$\text{BF}_3$	(iv)	Trigonal bipyramidal

Choose the correct answer from the options given below.

A. a-iii,b-i,c-iv,d-ii

B. a-iv,b-iii,c-ii,d-i

C. a-iv,b-iii,c-i,d-ii

D. a-ii,b-iii,c-iv,d-i

**Answer: C**



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**8. Dihedral angle of least stable conformer of ethane is:**

A.  $60^\circ$

B.  $0^\circ$



C.  $120^\circ$

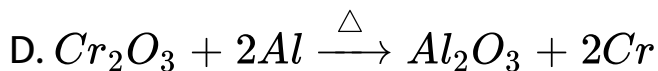
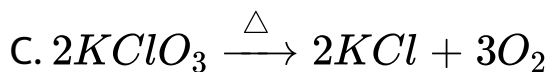
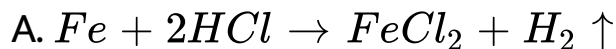
D.  $180^\circ$

**Answer:**



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9. Which of the following reactions is the metal displacement reaction? Chosse the right option

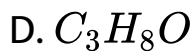
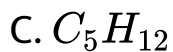
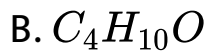
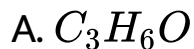


**Answer:**



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**10.** The compound which shows metamerism is:



**Answer: B**



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

A.  $C_p = RC_v$

B.  $C_v = RC_p$

C.  $C_p + C_v = R$

D.  $C_p - C_v = R$

**Answer:**



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

A. Navolac

B. Dacron

C. Teflon

D. Nylon-6,6

**Answer:**



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

- A. Starch solution
- B. Urea solution
- C. NaCl solution
- D. Glucose solution

**Answer: A**



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

A. 2

B. 3

C. 7

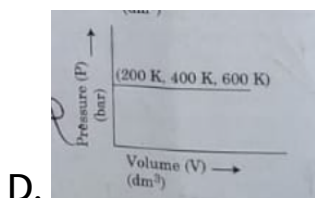
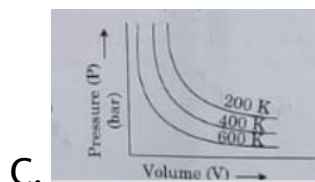
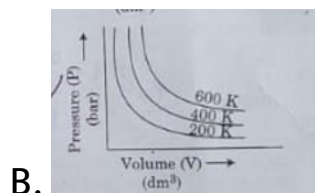
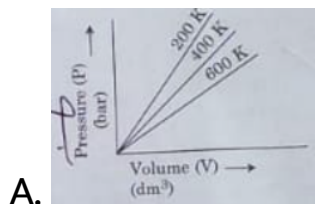
D. 5

**Answer:**



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15. Choose the correct option for graphical representation of Boyle's Law, which shows a graph of pressure vs volume of gas at different temperatures:



**Answer:**



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**16.** Noble gases are named because of their inertness towards reactivity. Identify as incorrect statement about them.

- A. Noble gases have weak dispersion forces
- B. Noble gases have large positive values of electron gain enthalpy
- C. Noble gases are sparingly soluble in water



D. Noble gases have very high melting and boiling points

**Answer: D**



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

A. Distillation

B. Zone refining

C. Electrolysis

## D. Chromatography

**Answer:**



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

A. Gamma

B. Neutron

C. Beta( $\beta^-$ )

D. Alpha( $\alpha$ )

**Answer:**



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

- A. Magnesium chloride
- B. Beryllium chloride
- C. Calcium chloride
- D. Strontium chloride

**Answer:**



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20. 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 dimethyammonium acetate solution is:

A. 7.75

B. 6.25

C. 8.5

D. 5.5

Answer:



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21. The molar conductance of  $\text{NaCl}$ ,  $\text{HCl}$  and  $\text{CH}_3\text{COONa}$  at infinite dilution are 126.45, 426.16 and  $91.0 \text{ Scm}^2\text{mol}^{-1}$  respectively. The molar conductance of  $\text{CH}_3\text{COOH}$  at infinite dilution is

A.  $698.28 \text{ Scm}^2\text{mol}^{-1}$

B.  $540.48 \text{ Scm}^2\text{mol}^{-1}$

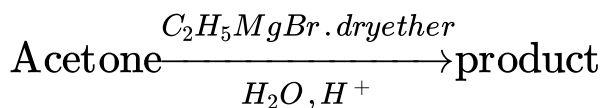
C.  $201.28 \text{ Scm}^2\text{mol}^{-1}$

D.  $390.71 \text{ Scm}^2\text{mol}^{-1}$

**Answer:**

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



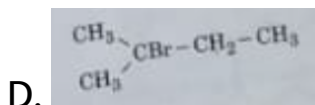
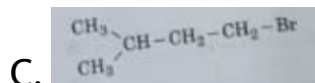
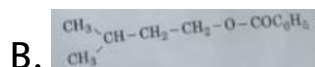
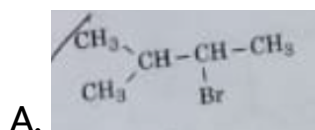
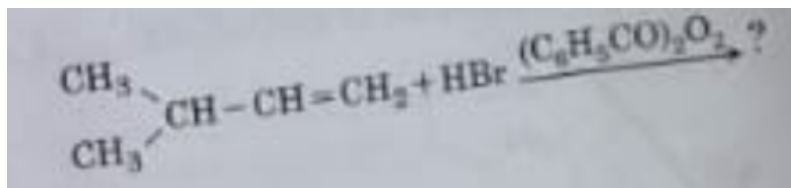
- A. Pentan-3-ol
- B. 2-methylbutan-2-ol
- C. 2-methylpropan-2-ol
- D. pentan-2-ol

**Answer:**



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

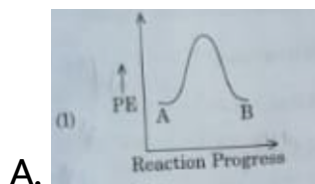


Answer: D

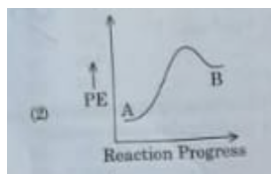


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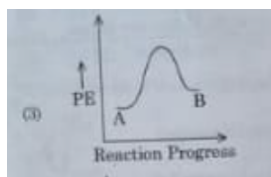
24. For a reaction  $A \rightarrow B$ , enthalpy of reaction is  $-4.2 \text{ kJ mol}^{-1}$  and enthalpy of activation is  $9.6 \text{ kJ mol}^{-1}$ . The correct potential energy profile for the reaction is shown in option.



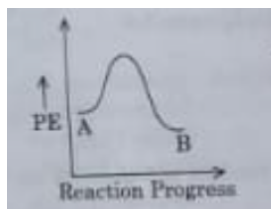
A.



B.



C.



D.



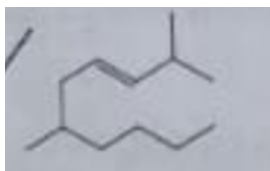
Answer:



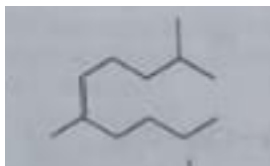
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25. The correct structure of 2,6-Dimethyl-dec-4-ene is:

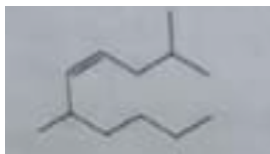
A.



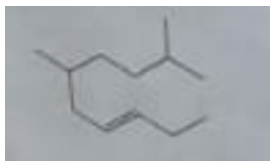
B.



C.



D.



**Answer:**



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**26.** Statement 1: Acid strength increases in the order given as  $HF < HCl < HBr < HI$ .

Statement 2: 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:

A. Statement 1 is Correct, Statement 2 is False.

B. Statement 1 is incorrect, Statement 2 is true.

C. Both Statement 1 and Statement 2 are true

D. Both Statement 1 and Statement 2 are false

**Answer: C**



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**27.** The major product formed in dehydrohalogenation reaction of 2-bromopentane is pen-2-ene. This product formation is based on?

A. Hofmann Rule

B. Huckel's Rule

C. Saytzeff's Rule

D. Hund's Rule

**Answer:**



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**28.** An organic compound contained 78%(by wt.) carbon and remaining % of hydrogen. The right option for the empirical formula of this compound is:

A.  $CH_3$

B.  $CH_4$

C.  $CH$

D.  $CH_2$

**Answer: A**



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**29.** The RBC deficiency is deficiency disease of:

A. Vitamin  $B_1$

B. Vitamin  $B_2$

C. Vitamin  $B_{12}$

D. Vitamin  $B_6$

**Answer:**

**30.** The maximum temperature that can be achieve in blast furnance is:

- A. upto 1900K
- B. upto 5000K
- C. upto 1200K
- D. upto 2200K

**Answer:**

**31.** The incorrect statements among the following is:

A. Lanthanoids are good conductors of heat and electricity

B. Actinoids are highly reactive metals, especially when finely divided

C. Actinoid contraction is greater for element to element than Lanthanoid contraction

D. Most of the trivalent Lanthanoid ions are colorless in the solid state

**Answer:**



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**32.** The structures of beryllium chloride in solid state and vapour phase are:

- A. Dimer and linear respectively
- B. Chain in both
- C. Chain and dimer respectively
- D. Linear in both

**Answer:**



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

A. 2,1

B. 12,6

C. 8,4

D. 6,12

**Answer:**



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

A.  $P_2 > P_3 > P_1$

B.  $P_3 > P_1 > P_2$

C.  $P_2 > P_1 > P_3$

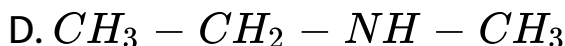
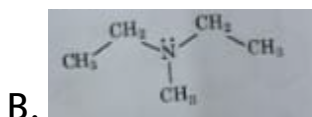
D.  $P_1 > P_2 > P_3$

**Answer:**



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



Answer:



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**36.** The correct option for the values of vapour pressure of a solution at  $45^{\circ}C$  with benzene to octane in molar ratio 3:2 is:

[At  $45^{\circ}C$  vapour pressure of benzene is 280mm Hg and that of octane is 420mm Hg, Assume ideal gas]

A. 336 mm of Hg

B. 350 mm of Hg

C. 160 mm of Hg

D. 168 mm of Hg

**Answer:**



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37. Match the following columns

Match List - I with List - II.

List - I	List - II
(a) $[\text{Fe}(\text{CN})_6]^{3-}$	(i) 5.92 BM
(b) $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$	(ii) 0 BM
(c) $[\text{Fe}(\text{CN})_6]^{4-}$	(iii) 4.90 BM
(d) $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$	(iv) 1.73 BM

Choose the correct answer from the options given below.

A. a-i,b-iii,c-iv,d-ii

B. a-iv,b-i,c-ii,d-iii

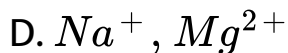
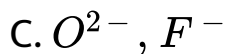
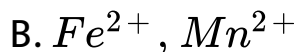
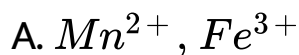
C. a-iv,b-ii,c-i,d-iii

D. a-ii,b-iv,c-iii,d-i

Answer:

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



**Answer:**

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




**Answer: A**



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40. Match the following columns

Match List - I with List - II.

List - I	List - II
(a)  $\xrightarrow[\text{Anhyd. AlCl}_3 / \text{CuCl}]{\text{CO, HCl}}$	(i) Hell-Volhard-Zelinsky reaction
(b) $\text{R}-\overset{\text{O}}{\underset{\text{  }}{\text{C}}}-\text{CH}_3 + \text{NaOX} \longrightarrow$	(ii) Gattermann-Koch reaction
(c) $\text{R}-\text{CH}_2-\text{OH} + \text{R}'\text{COOH} \xrightarrow{\text{Conc. H}_2\text{SO}_4}$	(iii) Haloform reaction
(d) $\text{R}-\text{CH}_2\text{COOH} \xrightarrow[\text{(ii) H}_2\text{O}]{\text{(i) X}_2/\text{Red P}}$	(iv) Esterification

Choose the correct answer from the options given below.

A. a-i, b-iv, c-iii, d-ii

B. a-ii, b-iii, c-iv, d-i

C. a-iv, b-i, c-ii, d-iii



D. a-iii.b-ii,c-i,d-iv

Answer:



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41. Match the following columns

Match List - I with List - II.

List - I	List - II
(a) $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{SO}_3(\text{g})$	(i) Acid rain
(b) $\text{HOCl}(\text{g}) \xrightarrow{h\nu} \dot{\text{O}}\text{H} + \dot{\text{Cl}}$	(ii) Smog
(c) $\text{CaCO}_3 + \text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + \text{H}_2\text{O} + \text{CO}_2$	(iii) Ozone depletion
(d) $\text{NO}_2(\text{g}) \xrightarrow{h\nu} \text{NO}(\text{g}) + \text{O}(\text{g})$	(iv) Tropospheric pollution

Choose the correct answer from the options given below.

A. a-iv,b-iii,c-i,d-ii

B. a-iii,b-ii,c-iv,d-i

C. a-i,b-ii,c-iii,d-iv

D. a-ii,b-iii,c-iv,d-i

**Answer: A**



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**42.** The slope of Arrhenius Plot ( $\ln K$  v/s  $1/T$ ) of 1st order reaction is  $-5 \times 10^3 \text{ K}$ . The value of  $E_a$  of the reaction is.

A.  $166 \text{ K J mol}^{-1}$

B.  $-83 \text{ KJmol}^{-1}$

C.  $41.5 \text{ KJmol}^{-1}$

D.  $83.0 \text{ KJmol}^{-1}$

**Answer:**



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

A.  $\Delta U = 0, \Delta S_{\text{total}} \neq 0$

B.  $\Delta U \neq 0, \Delta S_{\text{total}} = 0$

C.  $\Delta U = 0, \Delta S_{\text{total}} = 0$

D.  $\Delta U \neq 0, \Delta S_{\text{total}} \neq 0$

**Answer:**



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

A.  $NH_3 < PH_3 < AsH_3 < SbH_3$  : Increasing  
acidic character

B.  $CO_2 < SiO_2 < SnO_2 < PbO_2$  : Increasing  
oxidizing power

C.  $HF < HCl < HBr < HI$  : Increasing acidic strength

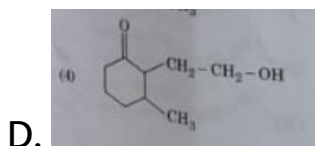
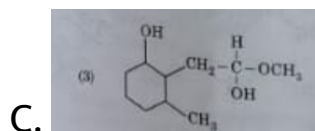
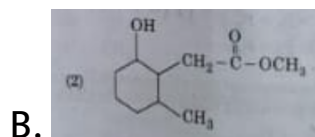
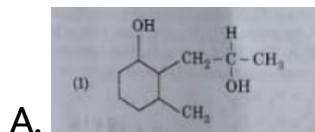
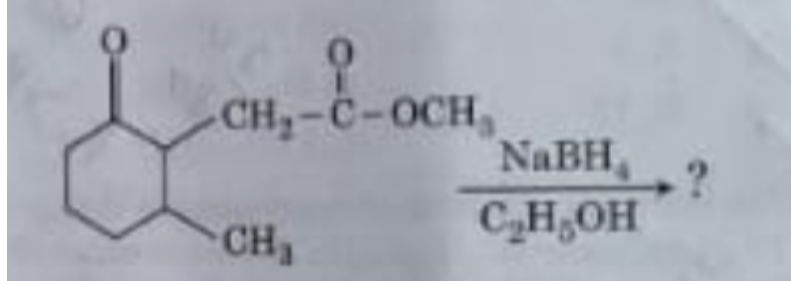
D.  $H_2O < H_2S < H_2Se < H_2Te$  : Increasing  $pK_a$  values

**Answer: D**



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**45.** The product formed in the following chemical reaction is:



**Answer:**



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**46.** Choose the correct option for the total pressure(in atm) in a mixture of 4g  $O_2$  and 2g of  $H_2$  confined in a total volume of 1L at  $0^\circ C$  is:

[Given  $R = 0.082 \text{ Latmmol}^{-1} K^{-1}$ ,  $T = 273K$ ]

A. 25.18

B. 26.02

C. 2.518

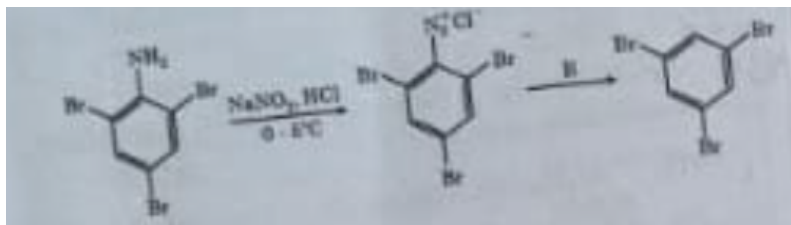
D. 2.602

**Answer:**



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



A. HI

B.  $\text{CuCN} / \text{KCN}$

C.  $\text{H}_2\text{O}$

D.  $\text{CH}_3\text{CH}_2\text{OH}$

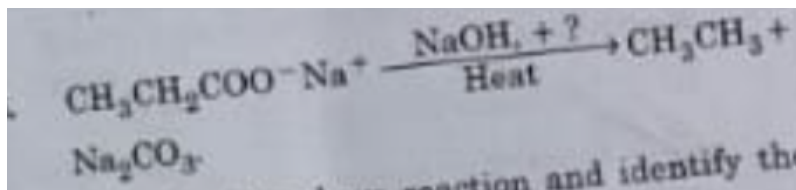
**Answer:**



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48.



Consider the above reaction and identify the missing reagent/chemical

A. CaO

B. DIBAL-H

C.  $B_2H_6$

D. Red phosphorus

**Answer:**



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

$$\left[ \Lambda_{H^+}^\circ = 350 \text{ Scm}^2 \text{ mol}^{-1} \quad \Lambda_{CH_3COO^-}^\circ = 50 \text{ Scm}^2 \text{ mol}^{-1} \right]$$

A.  $1.75 \times 10^{-5} \text{ molL}^{-1}$

B.  $2.50 \times 10^{-5} \text{ molL}^{-1}$

C.  $1.75 \times 10^{-4} \text{ molL}^{-1}$

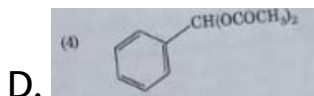
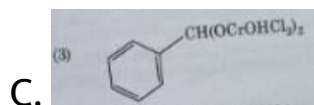
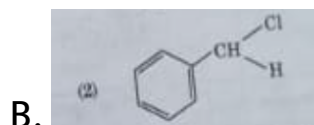
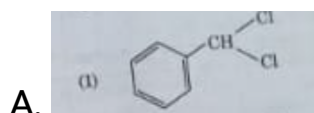
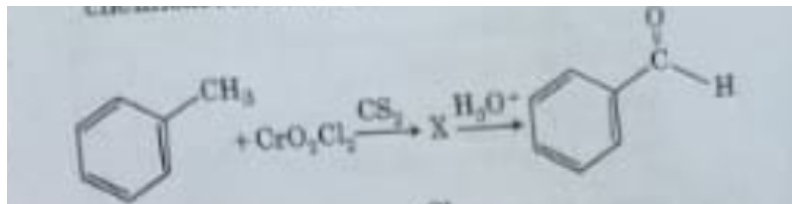
D.  $2.50 \times 10^{-4} \text{ molL}^{-1}$

**Answer:**



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



Answer: C



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