CHEMISTRY
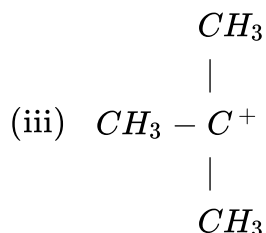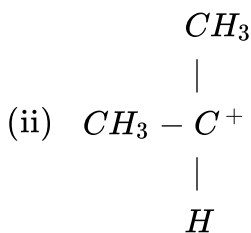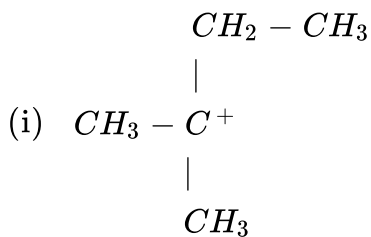
BOOKS - AIIMS PREVIOUS YEAR PAPERS

AIIMS 2019 25 MAY EVENING SHIFT

Chemistry

1. Stability order of following carbocation :

(i) $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_2-CH_3}{|}}{C^+}}$
(ii) $CH_3 - \underset{\underset{H}{|}}{\overset{\overset{CH_3}{|}}{C^+}}$
(iii) $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C^+}}$
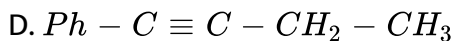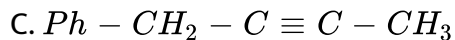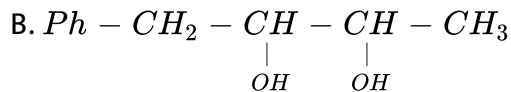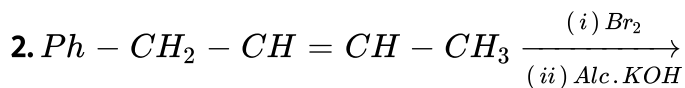
A. i gt ii gt iii gt iv

B. iv gt iii gt i gt ii

C. iv gt iii gt ii gt i

D. iii gt iv gt ii gt i

Answer: B

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2. $Ph - CH_2 - CH = CH - CH_3 \xrightarrow[(ii)\,Alc.\,KOH]{(i)\,Br_2}$

A. $Ph - CH = CH - CH = CH_2$

B. $Ph - CH_2 - \underset{\underset{OH}{|}}{CH} - \underset{\underset{OH}{|}}{CH} - CH_3$

C. $Ph - CH_2 - C \equiv C - CH_3$

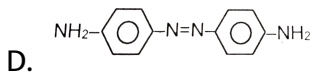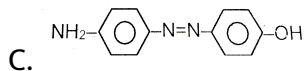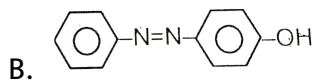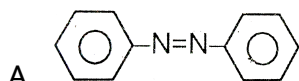D. $Ph - C \equiv C - CH_2 - CH_3$

Answer: C

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3. Assertion : Nylon-6 is condensation polymer
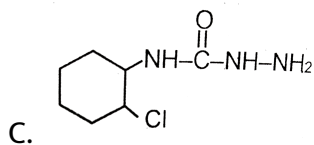
Reason : It is polymer of caprolactum

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4. Phenol + Aniline $\xrightarrow[KOH]{C_6H_5N_2^+ Cl}$ Major Product : Product will be:

A.

B.

C.

D.

Answer: B

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5.

NH–C–NH–NH$_2$ with cyclohexene ring, C double bonded to O

$\xrightarrow{\text{(i) HCl}}$
$\xrightarrow{\text{(ii) }\Delta}$

A. cyclohexane ring with NH–C(=O)–NH and NH fused ring structure

B. cyclohexane ring (quaternary carbon) with NH–C(=O)–NH and NH fused ring structure

C. cyclohexane ring with NH–C(=O)–NH–NH$_2$ and Cl substituent

D. cyclohexane ring with NH–C(=O)–NH–NH$_2$ and Cl substituent
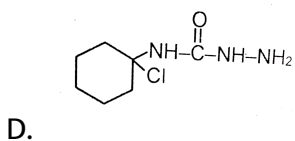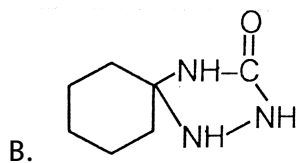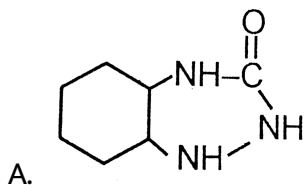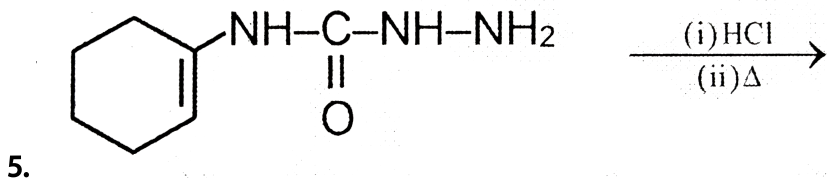
Answer: B

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6.

$$\xrightarrow[\text{H}_2\text{SO}_4]{\text{HNO}_3}$$ Major Product, Product will be :.

(1)

A.

(2)

B.

(3)

C.

(4)

D.
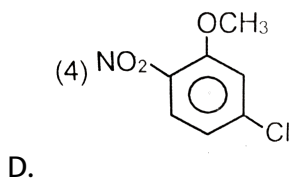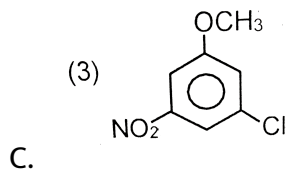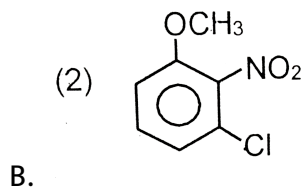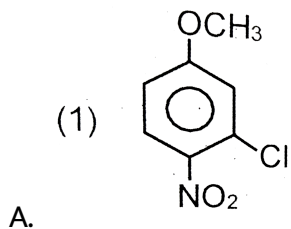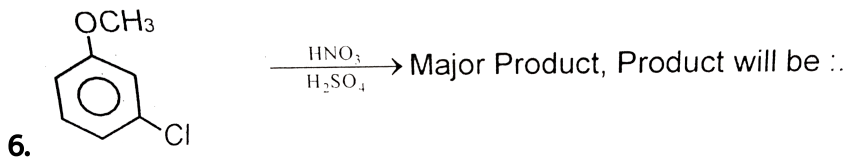
Answer: A

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7. Which of the following statement is correct for oleum ?

A. It is prepared by adsorption of SO_3 in conc. H_2SO_4

B. It contains O–O groups

C. I has six OH groups

D. None of these

Answer: A

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8. How many spectral line of balmer series present in visible region :

A. 5

B. 4

C. 2

D. 3

Answer: B

9. For a first order gas phase reaction :

$$A_{(g)} \rightarrow 2B_{(g)} + C_{(g)}$$
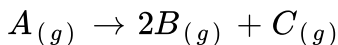
P_0 be initial pressure of A and P_t the total pressure at time 't'. Integrated rate equation is :

A. $\dfrac{2.303}{t}\log\left(\dfrac{P_0}{P_0 - P_t}\right)$

B. $\dfrac{2.303}{t}\log\left(\dfrac{2P_0}{3P_0 - P_t}\right)$

C. $\dfrac{2.303}{t}\log\left(\dfrac{P_0}{2P_0 - P_t}\right)$

D. $\dfrac{2.303}{t}\log\left(\dfrac{2P_0}{2P_0 - P_t}\right)$

Answer: B

10. Assertion : Out of $CrO_3 \& Al_2O_3$, CrO_3 having lower melting point than Al_2O_3.

Reason: Oxidation state of Cr in CrO_3 is high

11. Out of BeF_2, MgF_2, CaF_2, SrF_2 which has maximum solubility :

A. BeF_2

B. MgF_2

C. CaF_2

D. SrF_2

Answer: A

12. $\left[Co(Cr_2O_4)_3\right]^{3-}$ is a

A. Low spin complex

B. Paramagnetic

C. High spin

D. sp^3d^2 hybridized

Answer: A

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13. Which of the following has highest ratio of reducting hydrogen / OH :

A. Orthophosphhroric acid

B. Hypophosphorus acid

C. Phosphorus acid

D. Pyrophosphoric acid

Answer: B

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14. 1 mole of a diatomic is heated through isochoric process from 300 k to 500 K. The entropy is :

A. 19.14

B. 38.26

C. 20.05

D. 30

Answer: A

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15. Formula of metal oxide with metal deficiency defect in its crystal is $A_{0.8}O$. The crystal contains A^{2+} and A^{3+} ions. The fraction of metal existing as A^{2+} ions in the crystal is -

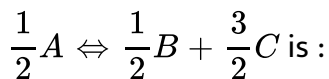A. 0.96

B. 0.04

C. 0.5

D. 0.31

Answer: C

16. Reaction $A \Leftrightarrow B + 3C$ at $25°$C temperature reaction on equilibrium.

If equilibrium constant and Gibb's free energy are Y and X respectively.

The Gibb's free energy for reaction
$\frac{1}{2}A \Leftrightarrow \frac{1}{2}B + \frac{3}{2}C$ is :

A. $\sqrt{x}$

B. x^2

C. $x^{2/3}$

D. $X/2$

Answer: D

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17. At $527°$ C temperature the activation energy is 54.7 KJ/mole. The value

of Arrhenius factor is 4×10^{10} . The rate constant will be

   A. 12.28×10^{11}

   B. 14.58×10^{13}

   C. 12.28×10^{17}

   D. 14.58×10^{-13}

Answer: B