

Important Chemistry Questions for NDA Exam

1. Which of the following compounds is not expected to show Lassaignes' test for nitrogen?

- A. Propanenitrile
- B. Hydroxylamine hydrochloride
- C. Nitromethane
- D. Ethanamine

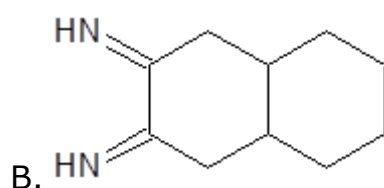
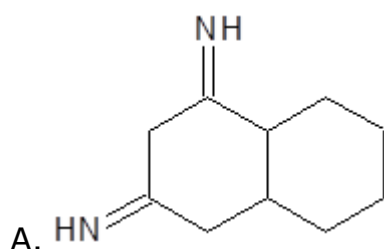
2. Sodium carbonate cannot be used in place of $(\text{NH}_4)_2\text{CO}_3$ for the identification of Ca^{2+} , Ba^{2+} and Sr^{2+} ions (in group V) during mixture analysis because :

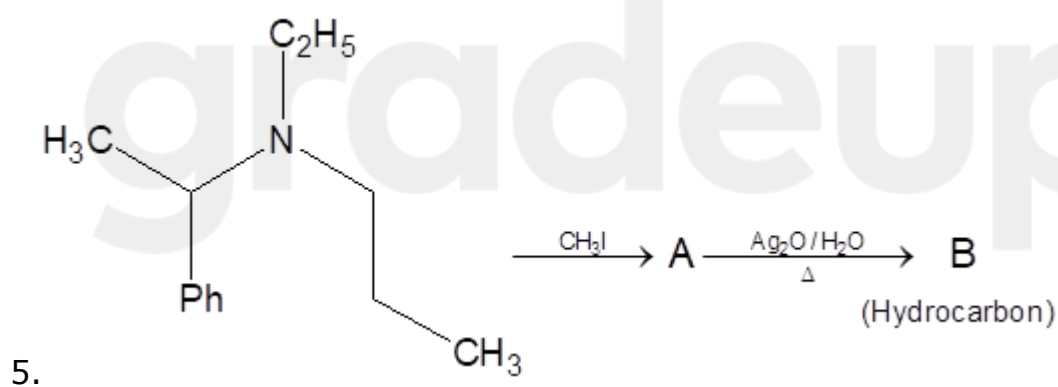
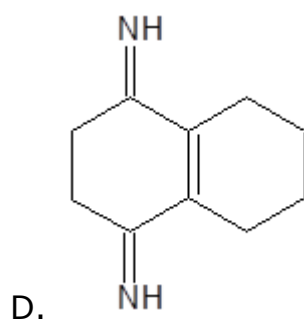
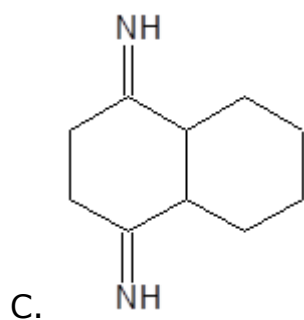
- A. Mg^{2+} ions will also be precipitated
- B. Concentration of CO_3^{2-} ions is very low
- C. Sodium ions will react with acid radicals
- D. ions will interfere with the detection of Ca^{2+} , Ba^{2+} , Sr^{2+} ions

3. The number of bridging CO ligand(s) and Co-Co bond(s) in $\text{Co}_2(\text{CO})_8$, respectively are:

- A. 2 and 0
- B. 2 and 1
- C. 4 and 0
- D. 0 and 2

4. Which of the following imine is least stable?





Hydrocarbon 'B' is,

A. CH_4

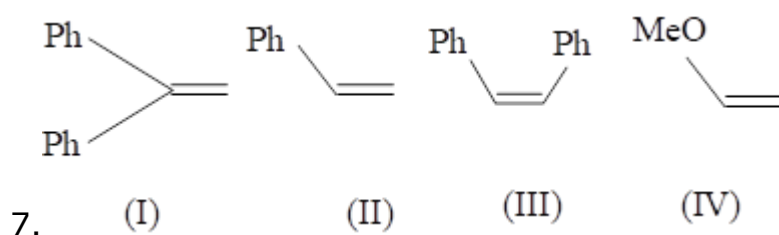
B. $\text{CH}_2 = \text{CH}_2$

C. $\text{CH}_2 = \text{CH} - \text{CH}_3$

D. $\text{Ph} - \text{CH} = \text{CH}_2$

6. The Ziegler-Natta catalysts are

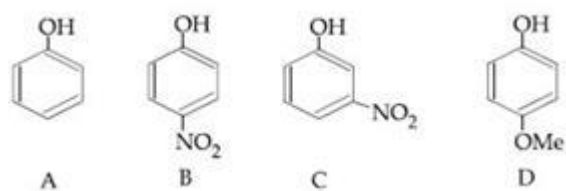
- A. Stereospecific
- B. Non-metallic complexes
- C. Gaseous catalysts
- D. Universal in all polymerisation reactions



Order of rate of electrophilic addition reaction with HBr will be

- A. $IV > I > III > II$
- B. $I > II > III > IV$
- C. $I > III > II > IV$
- D. $IV > I > II > III$

8. The increasing order of the pK_a values of the following compounds is :



- A. $C < B < A < D$
- B. $B < C < A < D$
- C. $D < A < C < B$
- D. $B < C < D < A$

9. Rate of dehydration of alcohols follows the order:

- A. $2^\circ > 1^\circ > CH_3OH > 3^\circ$
- B. $3^\circ > 2^\circ > 1^\circ > CH_3OH$

- C. $2^\circ > 3^\circ > 1^\circ > \text{CH}_3\text{OH}$
D. $\text{CH}_3\text{OH} > 2^\circ > 1^\circ > 3^\circ$

10. Which of the following will show geometrical isomerism?

- A. $\text{CH}_3\text{CH} = \text{CHCH}_3$
B. $(\text{CH}_3)\text{CH} = \text{C}(\text{CH}_3)_2$
C. $(\text{CH}_3)_2\text{C} = \text{C}(\text{CH}_3)_2$
D. $\text{CH}_3 - \text{CH} = \text{C}(\text{CH}_3)_2$

11. Which of the following is hereditary blood disorder anaemia?

- A. Pernicious anemia
B. Sickle cell anemia
C. Thalassemia
D. Aplastic anemia

12. The solution of which one of the following will have pH less than 7 ?

- A. NaOH
B. KCl
C. FeCl_3
D. NaCl

13. Which one of the following is an oxidation reduction reaction?

- A. $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
B. $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca}(\text{OH})_2$
C. $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$
D. $\text{Na}_2\text{SO}_4 + \text{BaCl}_2 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$

14. Which one of the following statements about the law of conservation of mass is correct?

- A. A given compound always contains exactly same proportion of elements.
B. When gases combine in a reaction, they do so in a simple ratio by volume, provided all gases are at room temperature
C. Matter can neither be created nor destroyed
D. Equal volumes of all gases at same temperature and pressure contain

equal number of molecules.

15. Which one of the following is a tribasic acid?

- A. Hydrochloric acid
- B. Nitric acid
- C. Sulphuric acid
- D. Phosphoric acid

16. The conversion of benzene diazonium chloride to bromobenzene can be accomplished by

- A. Reimer-Tiemann reaction
- B. Friedel-Crafts reaction
- C. Gattermann reaction
- D. Azo-coupling reaction

17. Reagent used to convert allyl alcohol to acrolein is

- A. MnO_2
- B. H_2O_2
- C. OsO_4
- D. KMnO_4

18. Hydracid of which of the following halogen forms an acidic salt?

- A. Fluorine
- B. Chlorine
- C. Bromine
- D. Iodine

19. The enthalpy of neutralisation of NH_4OH with HCl is $-51.46 \text{ kJ mol}^{-1}$ and the enthalpy of neutralisation of NaOH with HCl is $-55.90 \text{ kJ mol}^{-1}$. The enthalpy of ionisation of NH_4OH is

- A. $-107.36 \text{ kJ mol}^{-1}$
- B. $-4.44 \text{ kJ mol}^{-1}$
- C. $+107.36 \text{ kJ mol}^{-1}$
- D. $+4.44 \text{ kJ mol}^{-1}$

20. Beilstein test is used for the estimation of which one of the following elements?

- A. S
- B. Cl
- C. C and H
- D. N

21. Fog is a colloidal solution of

- A. solid particles dispersed in gas
- B. solid particles dispersed in a liquid
- C. liquid particles dispersed in gas
- D. gaseous particles dispersed in a liquid

22. Green house gases can be arranged in 'Global Warming Potential' sequence as

- A. $\text{N}_2\text{O} > \text{CFC} > \text{CH}_4 > \text{CO}_2$
- B. $\text{CFC} > \text{N}_2\text{O} > \text{CH}_4 > \text{CO}_2$
- C. $\text{CFC} > \text{CO}_2 > \text{N}_2\text{O} > \text{CH}_4$
- D. $\text{CO}_2 > \text{CFC} > \text{N}_2\text{O} > \text{CH}_4$

23. On addition of 1 mL of 10% NaCl solution to 10 mL gold sol in the presence of 0.025 g of starch, the coagulation is just prevented. Starch has gold number

- A. 2.5
- B. 25
- C. 0.25
- D. 0.025

24. Aspirin can be prepared by the reaction of

- A. Salicylaldehyde with acetic anhydride in presence of H_2SO_4
- B. Salicylic acid with methanol in presence of H_2SO_4
- C. Salicylic acid with acetic anhydride in presence of H_2SO_4
- D. Cinnamic acid with acetic anhydride in presence of H_2SO_4

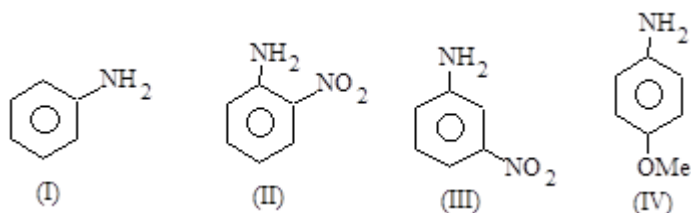
25. How many cyclic structures are possible for C_4H_6 ?

- A. 3
- B. 5
- C. 6
- D. 4

26. Magnetic moment of Gd^{3+} ion ($Z = 64$) (in BM) is

- A. 3.62
- B. 9.72
- C. 7.9
- D. 10.60

27. Correct order of basic character of following compound is



- A. $IV > I > III > II$
- B. $I > IV > II > III$
- C. $III > II > IV > I$
- D. $IV > I > II > III$

28. Which of the following is a non-reducing sugar?

- A. Lactose
- B. Fructose
- C. Sucrose
- D. Maltose

29. Which one of the following gemstones contains beryllium metal?

- A. Topaz
- B. Emerald
- C. Ruby
- D. Blue sapphire

30. Lowering the atmospheric pressure on a liquid

- A. increases the boiling point of the liquid
- B. lowers the boiling point of the liquid
- C. does not affect the boiling point of the liquid
- D. increases the time required for it to boil

31. Which of the following statements about carboxylic acids is/are correct?

- 1) Simple aliphatic carboxylic acids are soluble in water.
- 2) Higher carboxylic acids are practically insoluble in water.
- 3) The acidity of a carboxylic acid depends on the number of carbon atoms present in the hydrocarbon chain.

Select the correct answer using the code given below.

- A. 1 and 2 only
B. 2 and 3 only
C. 1 only
D. 1, 2 and 3

32. Match List-I with List-II and select the correct answer using the code given below the Lists:

List-I	List-II
(Compound)	(Types of polymer)
a. Melamine	1. Linear
b. Polyvinyl	2. Condensation
c. Terylene	3. Natural
d. Cellulose	4. Cross-linked

- A. a-3 b-2 c-1 d-4
B. a-4 b-1 c-2 d-3
C. a-3 b-1 c-2 d-4
D. a-4 b-2 c-1 d-3

33. Which one of the following is *not* a condensation polymer?

- A. Nylon
B. DNA
C. Polythene
D. Bakelite

34. Which one of the following gemstones contains beryllium metal?

- A. Topaz
B. Emerald
C. Ruby
D. Blue sapphire

35. Which one of the following is anisotropic in nature?

- A. Glass
- B. Rubber
- C. Plastic
- D. Quartz

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