

## JEE Main Shift 2 Analysis 27 JANUARY 2024

### Chemistry:

1. Which of the following quantity changes with the temperature?

- i. Mole Fraction
- ii. Mass Percentage
- iii. Molarity
- iv. Molality

Answer. iii. Molarity

2. Which of the following cannot act as an oxidising agent?

- i.  $\text{MnO}_4^-$
- ii.  $\text{SO}_4^{2-}$
- iii.  $\text{N}^{3-}$
- iv.  $\text{BrO}_3^-$

Answer. iii.  $\text{N}^{3-}$

3. The phenolic group can be identified by a positive result by which of the following tests?

- i. Lucas test
- ii. Carbylamine test
- iii. Phthalein test
- iv. Tollen's test

Answer. iii. Phthalein Test

4. The reduction potential at pH = 3 for a hydrogen electrode of a standard half cell is?

Answer. 0.18V

5. Identify the following species in which  $d^2sp^3$  hybridization is shown by central atom.

- i.  $\text{BrF}_5$
- ii.  $\text{SF}_6$
- iii.  $[\text{Co}(\text{NH}_3)_6]^{3+}$
- iv.  $[\text{PtCl}_4]^{2-}$

Answer. iii.  $[\text{Co}(\text{NH}_3)_6]^{3+}$

6. Which structure of protein is intact after coagulation of egg white on boiling?

Answer. Primary

7. What is the molecular formula of the second homologue in the homologous series of monocarboxylic acid?

Answer.  $\text{CH}_3\text{COOH}$

8. In which of the options do all the elements have a  $d^{10}$  configuration in their ground state?

- i. Cu, Zn, Cd, Ag
- ii. Cd, Au, Hg, Ni
- iii. Sc, Ti, Fe, Zn
- iv. Fe, Cr, Co, Ni

Answer. i. Cu, Zn, Cd, Ag

9. For a first-order reaction,  $t_{99.9\%} = xt_{50\%}$  Find out the value of x.

Answer. 10

10. If the longest wavelength for the Paschen Series in H-atom is  $\alpha$ , Find  $\alpha/7R$ .

Answer. 144

11. Which of the following will not give  $SN_1$ ?

i.  $CH_2=CH-CH_2-Cl$

ii.  $Ph-CH_2-Cl$

iii.  $CH_3-CH=CH-Cl$

iv.  $(H_3C)C-Cl$

Answer. iii.  $CH_3-CH=CH-Cl$

12. Find the magnetic moment of complex  $[Pd(NH_3)_2Cl_2]$ .

Answer. 0

13. When 9.3 g of aniline is reacted with acetic anhydride, the mass of acetanilide obtained is m grams. Find out the value of 2m.

Answer. 27

14. If X is the major product obtained when  $Ph-CH=CH_2$  reacts in the presence of (1)  $B_2H_6/THF/H_2O_2/O^-$ , (2)  $HBr$ , (3)  $Mg$ , Dry Ether, and (4)  $HCHO$ , then find F.

Answer.  $Ph-CH_2-CH_2-CH_2-OH$

15. What is the technique used for the purification of steam volatile water-immiscible substance?

Answer. Steam Distillation

16. Which of the following statements is correct:

i.  $Ce^{+4}$  is an oxidising agent

ii.  $Ce^{+4}$  is a reducing agent

iii.  $Ce^{+3}$  has a noble gas configuration

iv.  $Ce$  has a stable configuration

Answer. i.  $Ce^{+4}$  is an oxidising agent