

Time: 2 Hour

Total Marks: 75

**Class : XII**

**Subject : Chemistry**

**MCQ SINGLE CORRECT**

1. Assertion (A): Separation of Zr and Hf is difficult.  
Reason (R): Because Zr and Hf lie in the same group of the periodic table.
  - (a) Both Assertion and Reason are true and the Reason is the correct explanation of Assertion.
  - (b) Both Assertion and Reason are true and the Reason is not the correct explanation of Assertion.
  - (c) Assertion is not true but the Reason is true.
  - (d) Both Assertion and Reason are false.
2. Assertion (A): Network polymers are thermosetting.  
Reason (R): Network polymers have high molecular mass.
  - (a) Assertion and Reason both are correct statements but Reason is not the correct explanation of Assertion.
  - (b) Assertion and Reason both are correct statements and Reason is the correct explanation of Assertion.
  - (c) Both Assertion and Reason are false.
  - (d) Assertion is correct but Reason is false.
  - (e) Assertion is false but Reason is correct.
3. A narrow spectrum antibiotic is active against
  - (a) gram positive or gram negative bacteria
  - (b) gram negative bacteria only
  - (c) single organism or one disease
  - (d) both gram positive and gram negative bacteria
4. Which of the following process is responsible for the formation of delta at a place where rivers meet the sea?
  - (a) Emulsification
  - (b) Colloid formation
  - (c) Coagulation

All The Best!!!

(d) Peptisatioti

5. Which of the following statement is false?

(a) Units of atmospheric pressure and osmotic pressure are the same.

(b) In reverse osmosis, solvent molecules move through a semipermeable membrane from a region of lower concentration of solute to a region of higher concentration

(c) The value of molal depression constant depends on nature of solvent.

(d) Relative lowering of vapour pressure, is a dimensionless quantity

### MCQ MULTIPLE CORRECT

6. Alkyl fluorides are synthesized by heating an alkyl chloride/bromide in presence of or

(a)  $\text{CaF}_2$

(b)  $\text{CoF}_2$

(c)  $\text{Hg}_2\text{F}_2$

(d)  $\text{NaF}$

7. In the form of dichromate, Cr (VI) is a strong oxidizing agent in acidic medium but Mo (VI) in  $\text{MoO}_3$  and W (VI) in  $\text{WO}_3$  are not because

(a) Cr (VI) is more stable than Mo(VI) and W(VI)

(b) Mo(VI) and W(VI) are more stable than Cr(VI)

(c) higher oxidation states of heavier members of group-6 of transition series are more stable

(d) lower oxidation states of heavier members of group-6 of transition series are more stable

8. The main reactions occurring in blast furnace during extraction of iron from haematite are

(a)  $\text{Fe}_2\text{O}_3 + 3\text{CO} \longrightarrow 2\text{Fe} + 3\text{CO}_2$

(b)  $\text{FeO} + \text{SiO}_2 \longrightarrow \text{FeSiO}_3$

(c)  $\text{Fe}_2\text{O}_3 + 3\text{C} \longrightarrow 2\text{Fe} + 3\text{CO}$

(d)  $\text{CaO} + \text{SiO}_2 \longrightarrow \text{CaSiO}_3$

9. Which of the following are sulpha drugs?

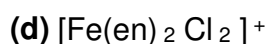
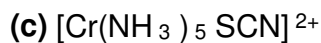
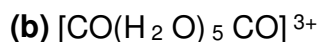
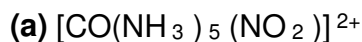
(a) Sulphapyridine

(b) Prontosil

(c) Salvarsan

(d) Nardil

10. Which of the following complexes show linkage isomerism?

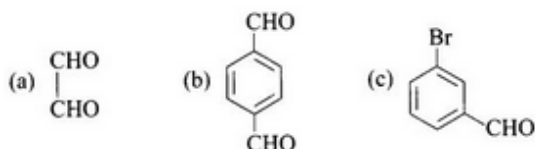


### VERY SHORT DESC

11. Name the electrophile produced in the reaction of benzene with benzoyl chloride in the presence of anhydrous  $\text{AlCl}_3$ . Name of the reaction also.

12. Can enzyme be called a polymer?

13. Write IUPAC names of the following structures:



14. What is a soft soap?

15. Why is nitric oxide paramagnetic in gaseous state but the solid obtained on cooling is diamagnetic?

### SHORT DESC - 25 WORDS

16. Discuss the trends in chemical reactivity of group 15 elements.

17. Bond angle in  $\text{PH}_4^+$  is higher than in  $\text{PH}_3$ . Why?

18. Why does  $\text{R}_3\text{P}=\text{O}$  exist but  $\text{R}_3\text{N}=\text{O}$  does not (R = alkyl group)?

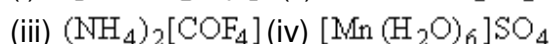
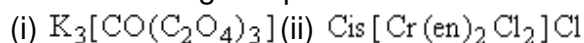
19. The HNH angle value is higher than HPH, HAsH and HSbH angles. Why?

20. Give the reason of bleaching action of  $\text{Cl}_2$ .

### MED DESC - 50 WORDS

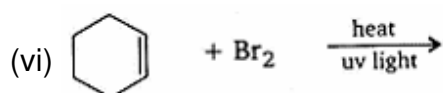
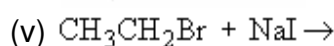
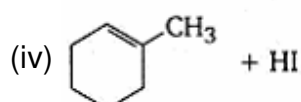
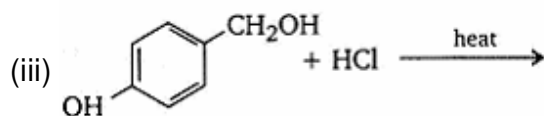
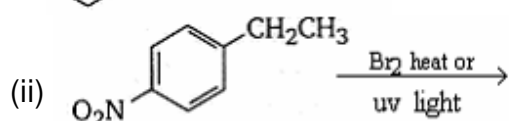
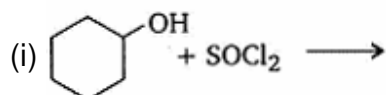
21. What is the effect of catalyst on activation energy? Why?

22. Give the oxidation state, d orbital occupation and coordination number of the central metal ion in the following complexes:



23. Discuss briefly giving an example in each case the role of coordination compounds in:  
(i) Biological systems (ii) Medicinal chemistry (iii) Analytical chemistry (iv) Extraction / metallurgy of metals.

24. Draw the structures of major monohalo products in each of the following reactions:



25. Aluminium crystallizes in a cubic close packed structure. Its metallic radius is 125 pm.

(i) What is the length of the side of the unit cell?

(ii) How many unit cells are there in  $1.00 \text{ cm}^3$  of aluminium?

### LONG DESC - 100 WORDS

26. Why is alpha ( $\alpha$ ) hydrogen of carbonyl compounds acidic in nature?

27. The decomposition of a hydrocarbon has value of rate constant as  $2.5 \times 10^4 \text{ s}^{-1}$  at what temperature would rate constant be  $7.5 \times 10^4 \text{ s}^{-1}$  if energy of activation is  $19.147 \times 10^3 \text{ J mol}^{-1}$ ?

28. Write one difference between transition elements and p-block elements with reference to variability of oxidation states.

29. Write the main product formed when propanal reacts with the following reagents:

(i) 2 moles of CH3OH in presence of dry HCl

(ii) Dilute NaOH

(iii) H2N-NH2 followed by heating with KOH in ethylene glycol.

30. Acetone, Acetaldehyde, Benzaldehyde, Acetophenone – reactivity towards addition of HCN.

### MATCH THE PAIRS

31. Match the items given in Column 1 with the type of solutions given in Column II.

Column 1	Column II

(i)	Soda water	(a)	A solution of gas in solid
(ii)	Sugar solution	(b)	A solution of gas in gas
(iii)	German silver	(c)	A solution of solid in liquid
(iv)	Air	(d)	A solution of solid in solid
(v)	Hydrogen gas in palladium	(e)	A solution of gas in liquid
		(f)	A solution of liquid in solid

(a) (i - e), (ii - c), (iii - d); (iv - b), (v - a)

(b) (i - c), (ii - e), (iii - d); (iv - b), (v - a)

(c) (i - d), (ii - b), (iii - c); (iv - e), (v - a)

(d) None of these

32. Match the polymers of Column I with correct monomers of Column II.

	Column I		Column II
(i)	High density polythene	(a)	Isoprene
(ii)	Neoprene	(b)	Tetrafluoroethene
(iii)	Natural Rubber	(c)	Chloroprene
(iv)	Teflon	(d)	Acrylonitrile
(v)	Acrilan	(e)	Ethene

(a) (i → e), (ii → c), (iii → a), (iv → b), (v → d)

(b) (i → d), (ii → b), (iii → c), (iv → a), (v → e)

(c) (i → b), (ii → d), (iii → a), (iv → c), (v → e)

(d) None of the above

33. Match the coordination compounds given in Column I with the central metal atoms given in Column II and assign the correct code:

	Column I (Coordination Compound)		Compound II (Central metal atom)
(A)	Chlorophyll	(1)	Rhodium
(B)	Blood pigment	(2)	Cobalt
(C)	Wilkinson catalyst	(3)	Calcium
(D)	Vitamin B <sub>12</sub>	(4)	Iron
		(5)	Magnesium

(a) (A → 5), (B → 4), (C → 1), (D → 2)

(b) (A → 3), (B → 4), (C → 5), (D → 1)

(c) (A → 4), (B → 3), (C → 2), (D → 1)

(d) None of these

34. Match the property given in Column I with the element given in Column II.

	Column I (property)		Column II
(i)	Lanthanoid which shows +4 oxidation state	(a)	Pm
(ii)	Lanthanoid which can show +2 oxidation state	(b)	Ce
(iii)	Radioactive lanthanoid	(c)	Lu
(iv)	Lanthanoid which has $4f^7$ electronic configuration in +3 oxidation state	(d)	Eu
(v)	Lanthanoid which has $4f^{14}$ electronic configuration in +3 oxidation state	(e)	Gd
		(f)	Dy

(a) (i) – (b), (ii) – (d), (iii) – (c), (iv) – (e), (v)- (f)

(b) (i) – (d), (ii) – (b), (iii) – (a), (iv) – (e), (v)- (f)

(c) (i) – (f), (ii) – (e), (iii) – (a), (iv) – (b), (v)- (d)

(d) None of these

35. Match the compounds given in Column I with the effects given in Column II.

	Column I		Column II
(i)	Chloramphenicol	(a)	Malaria
(ii)	Thyroxine	(b)	Anaesthetic
(iii)	Chloroquine	(c)	Typhoid fever
(iv)	Chloroform	(d)	Goiter
		(e)	Blood substituent

(a) (i → c), (ii → d), (iii → a), (iv → b)

(b) (i → b), (ii → c), (iii → a), (iv → d)

(c) (i → d), (ii → b), (iii → a), (iv → c)

(d) None of these