PANCHSHEEL PUBLIC SCHOOL

10+2 Senior Secondary School (Affiliated & Recognized by CBSE)
Jaitpur, Badarpur, New Delhi-44

MID TERM REVISION TEST PAPER

SESSION 2023-24

Time: 2.5 Hours **Subject: Chemistry** **Class: XII** **Date:** **M. Marks:50**

General Instructions:

All questions are compulsory

SECTION -A (1X15=15)

Q1. What is the Transition elements.
(a) half filled and partially filled d- orbitals.
(b). fully filled d- orbitals
(c). Both (a) and (b)
(d). None of these

Q2. Which of the following are d-block elements but not regarded as transistion elements?
(a) Cu, Ag, Au
(b) Zn, Cd, Hg
(c) Fe, Co, Ni
(d) Ru, Rh, Pd

Q3. Transistion elements form alloys easily because they have
(a) Same atomic number
(b) Same electronic configuration
(c) Nearly same atomic size
(d) None of these

Q4. hich of the following has the maximum number of unpaired electrons?
(a) Mg^{2+}
(b) Ti^{3+}
(c) V^{3+}
(d) Fe^{2+}

Q5. The property which is not characteristic of transistion metals is
(a) variable oxidation states.
(b) tendency to form complexes.
(c) formation of coloured compounds.
(d) natural radioactivity.

Q6. Which one of the following characteristics of the transistion metals is associated with higher catalytic activity?
(a) High enthalpy of atomisation
(b) Paramagnetic behaviour
(c) Colour of hydrate ions
(d) Variable oxidation states

Q7. Among the following, the one which reacts most readily with ethanol is
(a) p-Nitrobenzyl bromide
(b) p-Chlorobenzyl bromide

(c) p-methoxybenzyl bromide
(d) p-methyl benzyl bromide

Q8. tert-Butyl methyl ether on heating with HI gives a mixture of
(a) tert-Butyl alcohol and methyl iodide.
(b) tert-Butyl iodide and methanol
(c) Isobutylene and methyl iodide
(d) Isobutylene and methanol.

Q9.What is the elecronic configuration if Zn....

Q10. Which of the following has magnetic moment value of 5.9?
(a) Fe^{2+}
(b) Fe^{3+}
(c) Ni^{2+}
(d) Cu^{2+}

Q11. Which of the following are d-block elements but not regarded as transistion elements?
(a) Cu, Ag, Au
(b) Zn, Cd, Hg
(c) Fe, Co, Ni
(d) Ru, Rh, Pd

Q12. What is Pseudo unimolecular reaction?

Q13. For a chemical reaction A→B, it is found that the rate of reaction doubles when the concentration of A is increased four times. The order of reaction is
(a) Two
(b) One
(c) Half
(d) Zero

Q14.Which of the following is most acidic?
(a) Phenol
(b) Benzyl alcohol
(c) m-chlorophenol
(d) cyclohexanol

Q15. When Phenol is distilled with zinc dust, it gives
(a) Benzene
(b) Toluene
(c) Benzaldehyde
(d) Benzoic acid

SECTION-B (2X5=10)

Q16.(i).If the rate constant of a reaction is $k = 3 \times 10^{-4}\ s^{-1}$, then identify the order of the reaction.

(ii). For a reaction R → P, half-life ($t_{1/2}$) is observed to be independent of the initial

Q17.(i). Why is an increase in temperature observed on mixing chloroform and acetone.

(ii). Why does sodium chloride solution freeze at a lower temperature than water?

Q18. The chemistry of corrosion of iron is essentially an electrochemical phenomenon. Explain the reactions occurring during the corrosion of iron in the atmosphere.

Q19. What will be the effect of temperature on rate constant?

Q20. What is meant by chelate effect? Give an example.

SECTION-C (3X5= 15)

Q21. Give reasons for the following:

(i) Benzyl chloride is highly reactive towards the SN1 reaction.

(ii) 2-bromobutane is optically active but 1-bromobutane is optically inactive.

Q22. Write the structure of the alkene formed by dehydrohalogenation of 1-bromo-1-methylcyclohexane with alcoholic KOH.

Q23. For the complex $[Ni(CN)_4]^{2-}$, write the hybridization, magnetic character and spin of the complex. (At. number Ni = 28).

Q24. State Raoults law? What is the similarity between Raoults law and Henry's law.

Q25. State and explain :

(a) Sandmeyer reaction

(b). Gatterman reaction

SECTION -D (5X2= 10)

Q26. The following data were obtained during the first order thermal decomposition of SO2Cl2 at a constant volume.

$$SO_2Cl_2(g) \rightarrow SO_2(g) + Cl_2(g)$$

Exp	Time/ s-1	Totalpressure/atm
1	0	0.5
2	100	0.6

Calculate the rate of the reaction when

total pressure is 0.65 atm.

Q27. Consider the three types of replacement of group X by group Y as shown here.

This can result in giving compound (A) or (B) or both. What is the process called if

(a) (A) is the only compound obtained?

(b) (B) is the only compound obtained?

(c).(A) and (B) are formed in equal proportions?