JEE Main Session 2 Chemistry Exam: Model 2

1. PbCrO4 reacts in the presence of NaOH to give which complex?
   i. Dianionic with CN = 6
   ii. Dianionic with CN = 4
   iii. Neutral with CN = 4
   iv. Trianionic with CN = 6
2. Which of the following configurations has the strongest metallic bonding?
   i. $[Ar]3d^74s^2$
   ii. $[Ar]3d^54s^1$
   iii. $[Ar]3d^64s^2$
   iv. $[Ar]3d^34s^2$
3. Assertion: All s-block Elements are found in Nature
   Reason: 4f and 5f Series Periodic table are kept below
   i. Assertion and Reason, both are true and Reason is correct explanation of Assertion
   ii. Assertion and Reason, both are true and Reason is not correct explanation of Assertion.
   iii. Assertion is True, but Reason is False.
   iv. Assertion is False but Reason is True
4. Find out the sum of bond orders of CO & NO^+.
5. Calculate the mass of CH_4 consumed for the formation of 22g CO_2.
6. Calculate the temperature (in K) at which the kinetic energy of monoatomic gaseous molecule is equal to 0.414 eV.
7. Which of the following is a complex with maximum spin angular momentum?
   i. $[FeF_6]^{3-}$
   ii. $[Fe(CN)_6]^{3-}$
   iii. $[Fe(H_2O)_6]^{2+}$
   iv. $[V(H_2O)_6]^{2+}$
8. A solution of two volatile components showing negative deviation from Raoult's law shows:
   i. A Decrease in vapour pressure, boiling point increases
   ii. Increase in vapour pressure, boiling point decreases
   iii. Decrease in vapour pressure, boiling point decreases
   iv. Increase in vapour pressure, boiling point increases
9. Calculate the number of electrons for which n = 4 and s = +1/2.
10. Which of the following pairs will be formed by the decomposition of $KMnO_4$?
    i. MnO_4^-, MnO_2
    ii. K_2MnO_4, MnO_2
    iii. $KMnO_4$, MnO_2
    iv. MnO_2, H_2O
11. Calculate the Molarity of a solution having a density of 1.5 g/ml, percentage of (w/w) of solute as 36%, and molecular weight of solute 36 g/mol.
12. Determine products A and B when toluene reacts with Cl2 in the presence of sunlight (Product A) and in the presence of CCl4 (Product B).
13. Determine the major product for a given reaction.
14. What is the energy difference between the actual structure and its most stable resonating structure having the least energy is called as?
15. Which of the following coordination compounds has a bridging carbonyl ligand?
    i. $[Mn_2(CO)_{10}]$
    ii. $[CO_2(CO)_8]$
    iii. $[Cr(CO)_6]$
    iv. $[Fe(CO)_5]$