

**Prabhat Kumar College, Contai**

**B.Sc. General Examinations-2020 (Under CBCS Pattern)**

**Semester-IV, Subject: Chemistry**

**Paper: CC-4 (T+P)**

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Answer any **one question** from each part (within 250 words)

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**Part A (Theory)**

1. (a) Why  $\text{KMnO}_4$  is colored but  $\text{MnCl}_2$  is almost colorless? (b) Which is good oxidizing agent between  $\text{Ce}^{4+}$  and  $\text{Ce}^{3+}$ ?
2. Explain (i) Cu(I) is diamagnetic whereas Cu(II) is paramagnetic.  
(ii) What is 'Lanthanide contraction'?
3. (a) Give an example of each ionization isomerism and linkage isomerism with proper explanations. (b) Write the IUPAC name of  $[\text{Pt}(\text{NH}_3)_3\text{Br}(\text{NO}_2)\text{Cl}]\text{Cl}$ .
4. (a) NaCl and CsCl have similar structure, then why they have different structure?  
(b) How many atoms can be assigned to the unit cell of B.C.C and F.C.C?
5. Define the following terms depends on temperature.
  - (i) Surface tension of liquid
  - (ii) Viscosity coefficient of liquid
  - (iii) Root mean square velocity
  - (iv) Arrhenius concept on activation energy
6. What is meant by half-life period? What are the difference between molecularity and order of a reaction? What are pseudomolecular reactions?

**Part: B (Practical)**

1. Write down the reagents and identification test for each  $\text{Cu}^{2+}$ ,  $\text{Fe}^{2+}$  and  $\text{Ni}^{2+}$  ions.
  2. How would you perform complexometric titration of  $\text{Mg}^{2+}$  and  $\text{Ca}^{2+}$  in a mixture?
  3. Write down experimental procedure for determination of the relative and absolute viscosity of a liquid using an Ostwald's viscometer
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Send the scanned copy of answer script as a single PDF file to the following e-mail. [dolaimalay@gmail.com](mailto:dolaimalay@gmail.com)