Roll No												

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

MAKEUP EXAMINATION- JAN 2023

Course Code: CHE 101
Course Name: Engineering Chemistry
Program : B.Tech

Date: 30-JAN-2023
Time: 09:30 AM – 12:30 PM
Max Marks: 100
Weightage: 50 %

Instructions:
(i) Read the all questions carefully and answer accordingly.
(ii) Answer all the questions.

Part A

Answer all the Questions.

1. Fill in the following- **[15Qx2M= 30M]**

a) The cell reaction taking place at anode is----------.

b) The bond formed between a metal and non metal is----------.

c) Size and shape of molecules are visualized by----------.

d) Cotton is an example of ----------.

e) During the formation of a chemical bond, energy----------.

f) Monomers used in the synthesis of Bakelite are----------.

g) Decomposition of high molecular weight compounds (with high boiling points) to low molecular weight compounds (with low boiling points) is called as ----------.

h) Corrosion happening between two dissimilar metals is called as----------.

i) The concentration of hardness is always expressed in terms of Equivalents of----------.

j) Complete transfer of one or more electrons from one atom to different atom forms---------bond.

k) Teflon is synthesized by addition polymerisation of----------.

l) The tendency of atoms to prefer to have eight electrons in the valence shell is called----------.

m) At room temperature, ----------will have weak intermolecular forces.

n) A distinct state of a matter in which degree of molecular ordering is intermediate between the ordered crystalline state and completely disordered liquid state is called as----------.

o) The number of repeating units present in a polymer is called as ----------.

Part B

Answer all the Questions. **[Comprehension] (4Qx10M=40M)**

2. Explain different types of intermolecular forces present in different molecules, atoms and ions with suitable examples. (C.O.No. 1)
3. What are conducting polymers? Explain the criteria of conduction in conducting polymers and give any 4 important applications of conducting polymers. (C.O.No. 2)
4. Explain the experimental determination of the calorific value of liquid fuel. (C.O.No. 3)
5. What is desalination? Explain the method to be used for desalination of brackish water. (C.O.No. 4)

Part C

Answer all the questions. **[Application] (2Qx15M=30M)**

6. In a polymer sample 30% molecules have a molecular mass 20,000, 40% have molecular mass 30,000 and the rest have 60,000. Calculate number average and weight average molecular masses. (C.O.NO-2)
7. A water sample contains following salts:
   NaCl = 12.3 mg/l, $MgSO_4$ = 12.0 mg/l, $Mg(HCO_3)_2$ = 14.6 mg/l, $Ca(HCO_3)_2$ = 16.2 mg/l, $MgCl_2$ = 9.5 mg/l, $CaSO_4$ = 13.6 mg/l
   Calculate temporary, permanent and total hardness in ppm, assuming the atomic Masses of Na= 23, Cl = 35.5, Mg = 24, S = 32, C =12, O= 16, H=1, Ca=40. (C.O.NO-4)