1st Mid Term Examination – September -2024
B. Sc Chemistry (III- Semester)

Name of the Subject: Physical Chemistry-I

Duration: 60 Minutes

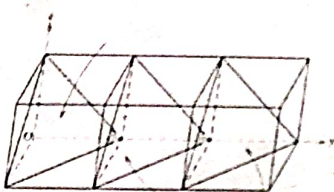**Max Marks : 20**

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Part-A
Answer all the questions. Each Carries 1-mark (1M X 5 = 5 M)

1. What is polymorphism and allotropy?
2. Calculate the miller indices of the following plane

3. Draw the unit cells of P, I, F, C.
4. What is lattice, motif and crystal?
5. What is crystallographic restriction theorem?

Part-B
Answer either A or B short answer question. Question carries 5 Marks. (5M x 1=5M)

6. **A)** (i) What is tin disease? Explain in terms of crystallography. (3M)

   (ii) What are the differences between amorphous and crystalline materials (2M)

OR

B) Draw the all existing symmetry elements in cubic system. How many each element of symmetry exist in it?

Part-C
Answer either A or B long answer question. Question carries 10 marks. (10M x 1=10M)

7. **A)** What is Braggs law? and derive the Bragg's equation. Draw a typical powder XRD pattern for a polycrystalline material.

OR

B) (i) Why edge centered lattice does not exist? Explain. (2M)

   (ii) Why cubic C is absent in the Bravais Lattice? Explain (3M)

   (iii) Calculate the distance between planes (h k l) in a cubic system having edge length "a". (5M)