KATHMANDU UNIVERSITY

Dulikhel, Kavre

Internal Examination II -2025

Subject: **MCSC- 201** Time : 60 min

Group : CE F.M. : 20

Attempt all questions.

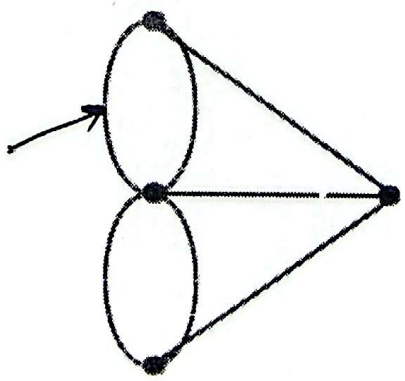
1. Define the permutation function. Let A = {a, b, c, d, e, f}. Compute (a, c, e) o (b, f, d) and check the resultant permutation is even or odd. **[1 + 2 + 1]**

2. If (A, ≤) and (B, ≤) are two poset. Then show that (A × B, ≤) is poset with partial order ≤ define by (a, b) ≤ (a', b') if a ≤ a' in A and b ≤ b' in B. What are the least and greatest elements of P(S) if S = {a, b, c} . **[3 + 1]**

3. Define isomorphism function on semi-group. Let T be the set of all even integers, show that the semi-group (Z, +) and (T, +) are isomorphic. **[1 + 3]**

4. G is the set of all non -zero real numbers and a*b = $\frac{ab}{5}$ for all a, b in G. Prove that (G, *) is a abelian group. **[4]**

5. Define connected Graph. Find the degree of vertices of following graph and prove that it has no Euler path. **[1 + 1.5+ 1.5]**



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