

**2<sup>nd</sup> QUIZ EXAMINATION of MA 205 DISCRETE MATHEMATICS in Maths Dept. BITD for BTECH (CSI) 3<sup>rd</sup> SEM. MO2024; TIME: Scheduled Class Time & room (25/10/2024)**

**Marks**

- Q1. Use the definition of big oh ( $O$ ) to prove that  $\left| (3n^4 - 2n) / (5n - 1) \right| = O(n^3)$  3
- Q2. Let  $G = \mathbb{R} - \{-1\}$ , prove that  $(G, *)$  is a group under the composition  $*$  define as  $a * b = a + b + ab$ ;  $\forall a, b \in G$ . Is this group commutative? 3+1
- Q3. Show that permutation group  $S_3$  with respect to multiplication (composition) is associative by an example. Is  $S_3$  group commutative? 2+1