

Raghunathpur College
Internal Examination-2020
Mode of Examination: Assignment writing
Subject: Mathematics
Paper: BMTMSEHT305 (Logic and Sets)

Full Marks: 10

Answer any five questions: $2 \times 5 = 10$

1. Let $A = \{2, 3, 5, 6\}$, $B = \{8, 10, 13, 20\}$, $C = \{a, b, c, d\}$ and ρ is a relation between A and B defined by $\rho = \{(2, 8), (2, 20), (3, 10), (5, 10), (6, 20)\}$ and σ is a relation between B and C defined by $\sigma = \{(8, b), (8, c), (10, a), (13, d), (20, c)\}$, then find $\sigma \circ \rho$ and ρ^{-1} .

2. Define equivalence relation on a set.

3. If a set S contain 7 elements, then

(i) How many relation can be defined on S .

(ii) How many relation are reflexive and how many relations are symmetric.

4. Define Poset (Partially ordered set) with example.

5. If $A \cup B = B$ holds for all subsets B , then prove that $A = \phi$.

6. What do you mean by "conjunction".

7. Construct the truth table for the proposition $\sim p \vee q$.

8. Construct the truth table for the proposition $(p \vee q) \wedge (q \wedge r)$.