



JHARGRAM RAJ COLLEGE
JHARGRAM – 721 507



DEPARTMENT OF MATHEMATICS

INTERNAL EXAMINATION – 2021- 2022

SEM: III

SUBJECT: MATHEMATICS PAPER: SEC - I (LOGIC & SETS)

Date: 06.01.2022

Maximum Marks: (2.5 × 2 = 5)

ANSWER ANY TWO OF THE FOLLOWING

1. Show that $p \leftrightarrow q$ is logically equivalent to $p \rightarrow q$ and $q \rightarrow p$.
2. Show that $((p \rightarrow q) \wedge (q \rightarrow r)) \rightarrow (p \rightarrow r)$ is a tautology.
3. Let $p(x, y)$ denotes " $\frac{x}{y} = 1$ " where x, y are real numbers. Find the truth value of the following -
 - a. $\forall x \forall y p(x, y)$
 - b. $\exists x \forall y p(x, y)$
