ASSIGNMENT   SET - I

Department of Mathematics

Mugberia Gangadhar Mahavidyalaya

B.Sc Hon.(CBCS)

Mathematics: Semester-III

Paper   Code: SEC-1T

[Logic & Sets]

Answer all the questions

1. What is statement?
2. Define negation, conjunction and disjunction of a statement with truth table.
3. Construct the truth table for $(p \lor q) \land (p \lor r)$.
4. Define conditional and biconditional statement with truth table.
5. Define converse, inverse and contrapositive.
6. Define propositional function and propositional variable.
7. Define tautology and contradiction of a statement with truth table.
8. Construct the truth table for $[(p \to q) \land (q \to r)] \to (p \to r)$.
9. Show that $p \to (q \to r) = (p \land q) \to r$.
10. Proved that $\sim(p \land q) \to (\sim p \lor (\sim p \lor q)) = \sim p \lor q$, without constructing truth table.
11. Write the converse, inverse and contrapositive of the conditional statement "if 2+2=4 then I am not the Prime Minister of India".
12. Define connectives $\downarrow$ and $\uparrow$ with truth table.
13. Write the difference between Universal Quantifier and Existential Quantifier.
14. Show that {∧, ∨} is functionally complete.
15. Define valid argument and low of syllogism with example.
16. Show that the following argument is a valid argument

   p

$p \wedge q \rightarrow r \vee s$

q

$\sim s$

_____END_____