

SUNDARBAN MAHAVIDYALAYA

Internal Examination 2020

MTMG Sem - 4 , SEC - B

F.M. - 20

Time - 2 hrs.

In the following , there are 10 questions of mark 2 each . Each question has 4 options , out of them only one is correct . Point out the correct options .

1. $(P \vee Q) \wedge (P \rightarrow R) \wedge (Q \rightarrow R)$ is equivalent to
 - (a) P
 - (b) Q
 - (c) R
 - (d) True = T
2. $\top(P \rightarrow Q)$ is equivalent to
 - (a) $P \wedge \top Q$
 - (b) $P \wedge Q$
 - (c) $\top P \vee Q$
 - (d) none of above
3. In propositional logic , which of the followings is equivalent to $P \rightarrow Q$
 - (a) $\sim P \rightarrow Q$
 - (b) $\sim P \vee Q$
 - (c) $\sim P \vee \sim Q$
 - (d) none of above
4. which of the following proposition is tautology
 - (a) $(p \vee q) \rightarrow q$
 - (b) $p \vee (q \rightarrow p)$
 - (c) $p \vee (p \rightarrow q)$
 - (d) none of above

5. $P \rightarrow (Q \rightarrow R)$ is equivalent to
- (a) $(P \wedge Q) \rightarrow R$
 - (b) $(P \vee Q) \rightarrow R$
 - (c) $(P \vee Q) \rightarrow \top R$
 - (d) none of above
6. which of the followings is tautology
- (a) $((P \vee Q) \wedge Q) \leftrightarrow Q$
 - (b) $((P \vee Q) \wedge \top P) \rightarrow Q$
 - (c) $((P \vee Q) \wedge P) \rightarrow P$
 - (d) both a) and b)
7. $(P \vee Q) \wedge (P \rightarrow R) \wedge (Q \rightarrow S)$ is equivalent to
- (a) $S \wedge R$
 - (b) $S \rightarrow R$
 - (c) $S \vee R$
 - (d) none of above
8. which of the followings is false
- (a) $((x \rightarrow y) \wedge x) \rightarrow y$
 - (b) $((\sim x \rightarrow y) \wedge (\sim x \wedge \sim y)) \rightarrow y$
 - (c) $(x \rightarrow (x \vee y))$
 - (d) $((x \vee y) \leftrightarrow (\sim x \vee \sim y))$
9. $p \wedge (\sim p \vee q)$ is
- (a) a tautology
 - (b) a contradiction
 - (c) logically equivalent to $p \wedge q$
 - (d) none of above
10. $\sim (p \wedge q)$ is equivalent to
- (a) $\sim p \vee \sim q$
 - (b) $p \vee \sim q$
 - (c) $\sim p \vee q$
 - (d) none of above