

2018/EVEN/SEM/PHIP-601/108

TDC Even Semester Exam., 2018

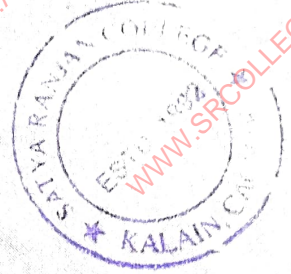
PHILOSOPHY

(Pass)

(6th Semester)

Course No. : PHIP-601

(Logic—II)



Full Marks : 50

Pass Marks : 17

Time : 2 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. (a) What are variables and constants? 2+2=4
- (b) Symbolise the following statements using suggested notations in brackets : 2×3=6
- (i) If Beneet comes then if Nitin is present, then Sampat will go (B, N, S).
- (ii) Rohit or Manish will play but they will not both play together (R, M).
- (iii) It is not the case that both Arun and Varun wins (A, V).

(Turn Over)

2. (a) What are the truth-values of a statement?
If p is true and q is false, what is the truth value of $p \cdot q$? 1+1=2

(b) Explain contradictory conjunction, implicative and disjunctive truth-functions along with truth-tables. 8

UNIT—II



3. (a) Use truth-tables to characterise the following statement forms as tautologous, contingent or contradictory: 4+4=8

(i) $(p \supset q) \vee \sim r$

(ii) $p \equiv [p \vee (p \cdot q)]$

(b) What is contradictory statement form? 2

4. Use truth-table to determine the validity or invalidity of the following arguments: 5+5=10

(a) $A \supset B$

$B \supset A$

$\therefore A \vee B$

(b) Jadu will either play football or cricket. Jadu will not play cricket. Therefore, Jadu will play football.

UNIT—III

(a) State the rules of absorption and exportation.

1+1=2

(b) Construct the formal proof of validity of the following :

4+4=8

- (i) 1. $X \supset I$
2. $(X \cdot I) \supset Y$
3. $(X \supset Y) \supset \sim H$
4. $H \vee N / \therefore N$

- (ii) 1. $(\sim N \cdot \sim M) \supset (L \supset M)$
2. $M \supset N$
3. $\sim N / \therefore \sim L$

(a) How many rules of replacement are there?

State the rule of Association.

1+1=2

(b) Construct the formal proof of validity for each of the following :

4+4=8

- (i) 1. $(W \cdot \sim V) \supset U$
2. $\sim(V \vee U) / \therefore \sim W$
- (ii) 1. $(T \supset \sim S) \supset R$
2. $\sim(T \cdot S) / \therefore R \vee \sim S$