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).

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

5. *(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. $\sim N / \therefore \sim L$

6. *(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. $\sim (T \cdot S) / \therefore R \vee \sim S$

UNIT—IV

7. *(a)* State the cannon of elimination in respect of the method of difference. 2

(b) State and explain the method of concomitant variation. Mention two merits of this method. 6+2=8

8. Explain with examples the method of residues. Is it a modification of the method of difference? Explain. 7+3=10

UNIT—V

9. *(a)* Mention different kinds of hypotheses. 2

(b) Explain the conditions of a valid hypothesis. 8

10. *(a)* Define with example of explanatory hypothesis. 4

(b) Explain briefly the different stages in scientific enquiry. 6

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