

2017/SEM/EVEN/PHIP-601/048

TDC Even Semester Exam., 2017

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 is a symbol in logic? Write two uses of symbols in logic. 2+2=4
- (b) Symbolise the following statements using suggested notations in brackets : 2×3=6
- (i) Ajay and Sujay both were not selected for the job (A, S).

(ii) Neither Rahul nor Sachin is adjudged as the best cricketer of the year (R, S).

(iii) If John does not lodge a complaint, then neither will Peter investigate nor Harry will be disqualified (J, P, H).

2. (a) What is truth-function? How many types of basic truth functions are there? When is an implicative truth-function false? $2+1+1=4$

(b) Explain the truth-functions of conjunction, disjunction and implication with the help of truth-tables. 6

UNIT—II

3. (a) Use truth-tables to characterise the following statement forms as tautologous, contingent or contradictory : $3+3=6$

(i) $\sim[p \supset (p \supset q)] \supset q$

(ii) $p \supset [p \supset (q \cdot \sim q)]$

(b) If A, B and C are true, and X, Y and Z are false, determine whether the following statements are true or false : $2+2=4$

(i) $[A \supset (X \supset Y)] \supset C$

(ii) $[(X \supset Z) \supset C] \supset Y$

4. (a) What is truth-table?

(b) Use truth-table to determine the validity or invalidity of the following arguments :

$$4+4=8$$

(i) $(A \vee B) \supset (A \cdot B)$

$$A \vee B$$

$$\therefore A \cdot B$$

(ii) $U \supset (V \vee W)$

$$(V \cdot W) \supset \sim U$$

$$\therefore \sim U$$

UNIT—III

5. (a) State the rule of inference by which the conclusion of the following arguments follows from the premise or premises :

$$1+1=2$$

(i) $(A \cdot B) \supset C$

$$\therefore (A \cdot B) \supset [(A \cdot B) \cdot C]$$

(ii) $\sim (B \cdot C) \supset (D \vee E)$

$$\sim (B \cdot C)$$

$$\therefore D \vee E$$

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

$$4+4=8$$

(i) $(E \vee F) \supset (G \cdot H)$

$$(G \vee H) \supset I$$

$$E \therefore I$$

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(ii) $A \supset B$
 $A \vee (C \cdot D)$
 $\sim B \cdot \sim E / \therefore C$

6. (a) State the rules of material implication and exportation. 1+1=2

(b) Construct formal proof of validity for the following arguments : 4+4=8

(i) $A \supset \sim B$
 $\sim (C \cdot \sim A) / \therefore C \supset \sim B$

(ii) $A \supset B$
 $\sim A \supset C / \therefore B \vee C$

UNIT—IV

7. (a) How many experimental methods are there? Who devised these methods? 1+1=2

(b) State and explain the joint method of agreement and difference. Mention two merits of this method. 6+2=8

8. (a) Explain and illustrate the method of agreement. 6

(b) State two merits and two demerits of the method of agreement. 2+2=4

UNIT—V

9. (a) Define hypothesis. What are its main forms? 2+2=4

(b) Discuss briefly the different stages of hypothesis. 6

10. What are the different criteria for evaluating scientific hypothesis? Explain them with example. 10
