

**2019/EVEN/PHIP-601/065**

**TDC Even Semester Exam., 2019**

**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 do you mean by symbol? Write two advantages of the use of symbols in logic.

2+2=4

(b) Symbolise the following statements using suggested notations in the brackets : 2×3=6

(i) Either Ataul shouts or Barun teases,  
but neither Chinmoy nor Dipak  
rebukes (A, B, C, D).

(ii) If India does not win its first game, then it is not the case that either Australia or New Zealand wins its first game (I, A, N).

(iii) Either Atlanta or Baltimore will win their conference championship but neither Chicago nor Dallas will win their superbowl (A, B, C, D).

2. (a) What is truth function? How many basic truth functions are there? Name them.

2+1+1=4

(b) Explain conjunctive, disjunctive and equivalent truth functions with 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)  $p \supset [\sim p \supset (q \vee \sim q)]$

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

(b) If A and B are true statements and X and Y are false statements, which of the following compound statements are true? 2+2=4

(i)  $(A \supset B) \supset (\sim A \supset \sim B)$

(ii)  $[(A \cdot X) \supset Y] \supset (A \supset Y)$

( 3 )

4. (a) What is truth-table? 2

(b) Use truth-table to determine validity or invalidity of the following arguments : 4+4=8

(i)  $(C \vee D) \supset (C \cdot D)$

$C \cdot D$

$\therefore C \vee D$

(ii)  $(I \vee J) \supset (I \cdot J)$

$\sim (I \vee J)$

$\therefore \sim (I \cdot J)$

UNIT—III

5. (a) How many elementary rules are there?

State the rule of hypothetical syllogism. 1+1=2

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

(i)  $D \supset C$

$(D \cdot C) \supset B$

$(D \cdot B) \supset A$

$\therefore D \supset A$

(ii)  $(K \supset J) \cdot (J \supset K)$

$I \supset H$

$K \vee I$

$\therefore J \vee H$

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

( 4 )

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

(i)  $E \supset F$   
 $E \supset G$   
 $\therefore E \supset (F \cdot G)$

(ii)  $A \supset Z$   
 $A \vee Z$   
 $\therefore Z$

#### UNIT—IV

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

(b) Explain with example the method of difference. Is it a method of proof?  $6+2=8$

8. (a) Explain with example the method of agreement.  $6$

(b) State advantages and disadvantages of the method of agreement.  $4$

#### UNIT—V

9. (a) Define hypothesis.  $2$

(b) What are the different criteria for evaluating scientific hypothesis? Explain.  $8$

10. (a) Write a note on working hypothesis.  $3$

(b) Discuss the role of hypothesis in scientific enquiries.  $7$

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