

**2019/TDC/ODD/SEM/  
PHPHCC-102T/153**

**TDC (CBCS) Odd Semester Exam., 2019**

**PHILOSOPHY**

**( 1st Semester )**

Course No. : PHPHCC-102T

**( Logic—I )**

Full Marks : 70

Pass Marks : 28

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

**UNIT—I**

1. Answer the following as directed (any two) :  $2 \times 2 = 4$

(a) "Symbolic logic is formal." Is the statement true? What are symbols?

(b) What is formal truth?

(c) Validity and invalidity characterise propositions/arguments.

( Choose the correct one )

2. (a) What is logic? Discuss the nature of logic. 1+4=5  
(b) Distinguish between truth and validity. With which logic is concerned? 4+1=5

OR

3. (a) What is an argument? 3  
(b) Distinguish between an argument and argument form with examples. 7

UNIT—II

4. Answer any two of the following questions : 2×2=4  
(a) Name the opposition that exists between A and E, and E and I propositions.  
(b) What is a general proposition?  
(c) Give examples of existential general proposition and disjunctive proposition.
5. (a) How does modern logician define proposition? 2  
(b) Explain the classification of propositions in modern logic. 8

OR

6. (a) What is opposition of proposition? Discuss the traditional square of opposition. 2+4=6  
(b) Explain the Boolean square of opposition. 4

UNIT—III

7. Answer any two of the following questions : 2×2=4  
(a) None but wise are intelligent. (Convert.)  
(b) Name two valid moods of the second figure.  
(c) What is existential fallacy? Give example.
8. (a) What is obversion? What are the rules of obversion? 2+4=6  
(b) Is material obversion, obversion proper? 4

OR

9. Use Venn diagram technique to test the validity and invalidity of the following arguments and name the mood if any : 5+5=10  
(a) EAE—2  
(b) AAI—4

UNIT—IV

10. Answer any two of the following questions : 2×2=4  
(a) If A and B are true statements and x and y are false statements, determine the truth value of the following expression :

$$(Y \cdot B) \vee A$$

UNIT—V

13. Answer any two of the following questions :  $2 \times 2 = 4$

(a) How many rules of inference are there in formal proof of validity? State the rules of absorption (abs).

(b)  $p$   
 $\therefore p \vee q$

Name the rule of inference by which the conclusion follows.

(c) Symbolise the following statements using the suggested notations :

If all humans are mortal and Socrates is a man, then Socrates is mortal. (H, S, M)

14. Construct formal proof of validity of the following arguments :  $2\frac{1}{2} \times 4 = 10$

(a)  $A \cdot B$   
 $(A \vee C) \supset D$   
 $\therefore A \cdot D$

(b)  $A \supset (B \vee C)$   
 $(D \cdot E) \supset B$   
 $(B \vee C) \supset (D \cdot E)$   
 $\therefore A \supset B$

(b) What is truth-function?

(c) Construct truth table of disjunctive function.

11. Use truth table to characterize the following statement forms as tautologous, contingent or contradictories :  $2\frac{1}{2} \times 4 = 10$

(a)  $(p \cdot q) \cdot (p \supset \sim q)$

(b)  $(p \cdot \sim q) \vee \sim(p \cdot q)$

(c)  $(p \cdot q) \supset [\sim(q \cdot r) \supset \sim(r \cdot p)]$

(d)  $(p \vee q) \equiv \sim(\sim p \cdot \sim q)$

OR

12. (a) What is reductio ad absurdum? 2

(b) Use shorter truth-table method to determine whether or not the following arguments are valid :  $4 + 4 = 8$

(i) If rains are enough, crops will be good.  
The rains are not enough. Therefore,  
the crops will not be good.

(ii)  $p \supset q$   
 $q \supset r$   
 $\therefore p \supset r$

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(c)  $(P \vee Q) \supset \sim R$

$R \vee S$

$P / \therefore S$

(d)  $(M \supset N) \cdot (Q \supset P)$

$P \vee M$

$\sim P / \therefore N$

OR

15. What is formal proof of validity? State nine rules of inference with examples. 2+8=10

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