**TDC (CBCS) Odd Semester Exam., 2023**

# PHILOSOPHY

**( 1st Semester )**

Course No. : PHIDSC/GE-101T

**( Logic )**

*Full Marks* : 70
*Pass Marks* : 28

*Time* : 3 hours

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

## SECTION—A

Answer *twenty* questions, selecting *four* from each Unit : 1×20=20

### UNIT—I

**1.** What is the ideal of logic?

**2.** Is logic a science or an art or both?

**3.** On what does the validity of an argument depend?

**4.** What are the different types of truth logic deals with?

5. Write one use of studying logic.

UNIT—II

6. How many parts are there in a proposition?

7. What is negative proposition?

8. Are class membership proposition and general proposition same?

9. Give a symbolic example of universal affirmative proposition.

10. What kind of opposition exists between I and O propositions?

UNIT—III

11. What is mediate inference?

12. State one rule of obversion.

13. "Some men are wise." Convert.

14. Name one valid mood of the first figure.

15. What is the position of the middle term in the third figure?

## UNIT—IV

**16.** What is symbol?

**17.** What is the symbol of biconditional?

**18.** If $p$ is true, $q$ is false, then what is the truth-value of $p \cdot q$?

**19.** What is truth-value?

**20.** What is tautology?

## UNIT—V

**21.** How many elementary rules of inference are there?

**22.** What is modus ponens in propositional logic?

**23.** Give an example of disjunctive syllogism.

**24.** State the rule of conjunction.

**25.** State the rule of absorption (Abs).

## SECTION—B

Answer *five* questions, selecting *one* from each Unit : 2×5=10

### UNIT—I

**26.** What do you mean by the term 'validity'?

**27.** When an argument becomes invalid?

### UNIT—II

**28.** What is an existential general proposition?

**29.** What do you mean by 'opposition of propositions'?

### UNIT—III

**30.** What is material obversion?

**31.** State any two rules of syllogism as put forward by I. M. Copi.

### UNIT—IV

**32.** What do you mean by truth function?



( Continued )

**33.** Symbolize the following :

*(a)* Either the papers are difficult or students have not studied well.

*(b)* If it rains, then there will be good harvest.

UNIT—V

**34.** State the rules of modus ponens (MP) and modus tollens (MT).

**35.** State the justification for each line that is not a premise for the following argument :

$J \supset K$

$J \;/\; \therefore K \vee L$

$K$

$K \vee L$

SECTION—C

Answer *five* questions, selecting *one* from each Unit : 8×5=40

UNIT—I

**36.** Explain the nature and scope of logic. 4+4=8

**37.** What is truth? Explain the relation between truth and validity with examples. 2+6=8

## UNIT—II

**38.** What is proposition? Explain the four-fold scheme of proposition with examples.

**39.** Explain Aristotelian square of opposition with a diagram. How does it differ from traditional square of opposition? 6+2=8

## UNIT—III

**40.** What is conversion? State the rules of conversion. Can A proposition be converted simply? 2+4+2=8

**41.** Test the validity or invalidity of the following arguments by means of Venn diagram : 4+4=8

*(a)* Some reformers are philosophers, so, some idealists are philosophers, since all reformers are idealists.

*(b)* All books are instructive; some magazines are instructive, hence, some magazines are books.

## UNIT—IV

**42.** Use truth tables to determine the validity or invalidity of the following argument forms : 4+4=8

*(i)* $p \vee q$
$\sim p$
$\therefore q$



( Continued )

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

**43.** Prove the invalidity of the following by using the shorter truth-table method : 4+4=8

(i) $z \supset y$
$x \supset w$
$z \vee w$
$\therefore\ y \vee x$

(ii) $A \equiv (B \vee C)$
$B \equiv (C \vee A)$
$C \equiv (A \vee B)$
$\sim A$
$\therefore\ B \vee C$

## UNIT—V

**44.** State the justification for each line that is not a premise for the following arguments : 4+4=8

(a) (i) $(F \supset G) \cdot (H \supset I)$
(ii) $J \supset K$
(iii) $(F \vee J) \cdot (H \vee L)$ / $\therefore G \vee K$
(iv) $F \vee J$
(v) $F \supset G$
(vi) $(F \supset G) \cdot (J \supset K)$
(vii) $G \vee K$

(b) (i) $w \supset x$

(ii) $(w \cdot x) \supset y$

(iii) $(w \cdot y) \supset z \quad / \therefore w \supset z$

(iv) $w \supset (w \cdot x)$

(v) $w \supset y$

(vi) $w \supset (w \cdot y)$

(vii) $w \supset z$

**45.** Construct formal proof of validity for the following arguments : 4+4=8

(i) $D \supset C$

$(D \supset B) \supset (A \vee C)$

$(D \cdot C) \supset B$

$\sim A \quad / \therefore C$

(ii) $(K \vee L) \supset (M \vee N)$

$(M \vee N) \supset (O \cdot P)$

$K \quad / \therefore O$

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