2023/TDC(CBCS)/ODD/SEM/
PHISEC–501T/065

TDC (CBCS) Odd Semester Exam., 2023

PHILOSOPHY

(5th Semester)

Course No. : PHISEC–501T

(Logical Reasoning—II)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

SECTION—A

Answer *fifteen* questions, selecting any *three* from each Unit : 1×15=15

Unit—I

1. What is inductive reasoning?

2. Define Anumāna.

3. How many kinds of Anumāna are there, according to Gotama?

4. What is Pakṣatā?

Unit—II

5. "A valid Hetu has five characteristics."Is the statement true?

6. Define Hetu.

7. "Fire is cold, because it is a substance." Mention the Hetvābhāsa involved in this inference.

8. How many types of Savyabhicāra Hetvābhāsa are there?

Unit—III

9. What are variables?

10. What is the symbol of implicative function?

11. How do modern logicians define a proposition?

12. If p is true and q is false, what will be the truth-value of $p \vee q$?

Unit—IV

13. How many elementary rules of inference are there?

14. State the rule of disjunctive syllogism.

15. State the rule of transposition.

16. Are the rules of replacement just logical equivalences?

Unit—V

17. When does an argument become invalid?

18. When does an implicative function become false?

19. Who is regarded as the father of set theory?

20. What is an empty set?

SECTION—B

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

Unit—I

21. State two points of differences between deduction and induction.

22. What is Parāmarśa?

Unit—II

23. What is Hetvābhāsa?

24. Explain with an example of the Savyabhicāra Hetvābhāsa.

Unit—III

25. Symbolize the following statements :

    (a) If he comes, then I shall go (C, G).

    (b) Either he is telling the truth or he is lying (T, L).

26. What is truth-table?

Unit—IV

27. State two differences between the rules of inference and the rules of replacement.

28. State the rules of constructive dilemma and destructive dilemma.

Unit—V

29. Mention two utilities of shorter truth-table technique.

30. Distinguish between finite and infinite sets with examples.

SECTION—C

Answer *five* questions, selecting *one* from each Unit : 5×5=25

Unit—I

31. Briefly discuss the different classifications of Anumāna.

32. What is Vyāpti? Briefly discuss how Vyāpti is established. 1+4=5

Unit—II

33. Explain with examples Viruddha, Satpratipakṣa and Bādhita Hetvābhāsa.

34. Explain with examples Savyabhicāra and Asiddha Hetvābhāsa mentioning their sub-types.

Unit—III

35. Use truth-table to characterize the following statement-forms as tautologous, contradictory or contingent : $2\frac{1}{2}+2\frac{1}{2}=5$

    (i) $[(p \supset q) \cdot (q \supset r)] \supset (p \supset r)$

    (ii) $p \supset [q \vee (p \equiv r)]$

36. Use truth-table method to determine the validity or invalidity of the following argument-forms : $2\frac{1}{2}+2\frac{1}{2}=5$

(i) $p \supset (q \cdot r)$
$(q \vee r) \supset \sim p$
$\therefore \sim p$

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

Unit—IV

37. Construct formal proof of validity for the following : $2\frac{1}{2}+2\frac{1}{2}=5$

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

(ii) $(D \cdot E) \supset \sim F$
$F \vee (G \cdot H)$
$D \equiv E$
$\therefore D \supset G$

(Continued)

38. Construct indirect proof to prove the validity of the following : $2\frac{1}{2}+2\frac{1}{2}=5$

(i) $(H \supset I) \cdot (J \supset K)$
$(I \vee K) \supset L$
$\sim L$
$\therefore \sim (H \vee J)$

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

Unit—V

39. Prove the invalidity of the following using shorter truth-table method : $2\frac{1}{2}+2\frac{1}{2}=5$

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

(ii) $R \supset (Q \vee P)$
$(Q \cdot P) \supset O$
$\therefore R \supset O$

(Turn Over)

40. If $A=\{1, 2, 3, 4, 5\}$, $B=\{3, 5, 6, 7\}$ and $C=\{2, 4, 3, 8\}$, then find the following : $2\frac{1}{2}+2\frac{1}{2}=5$

(i) $(A \cap B) \cup (A \cap C)$

(ii) $(A \cup B) \cap (A \cup C)$

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