TDC (CBCS) Odd Semester Exam., 2022

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

UNIT—I

1. Answer any *three* of the following questions : 1×3=3

(a) What is Deductive Reasoning?

(b) What is Anumāna?

(c) Define Pakṣatā.

(d) What is Parāmarśa?

2. Answer any *one* of the following questions : 2

   (a) State two points of differences between Deduction and Induction.

   (b) What are the two types of Vyāpti? Give example of each.

3. *(a)* Briefly discuss the different classifications of Anumāna. 5

   Or

   (b) What is Vyāpti? Briefly discuss how Vyāpti is established. 1+4=5

UNIT—II

4. Answer any *three* of the following questions : 1×3=3

   (a) According to Nyāya logic, how many characteristics does a valid Hetu have?

   (b) What kind of fallacies of inferences is found in Nyāya logic?

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

   (d) How many types of Asiddha Hetvābhāsa are there?

5. Answer any *one* of the following questions : 2

   (a) What is Hetvābhāsa?

   (b) Briefly explain Viruddha Hetvābhāsa with an example.

6. *(a)* Briefly explain the five types of Hetvābhāsa after the Naiyāyikas. 5

   Or

   (b) What are the five characteristics of a valid Hetu? Mention the Hetvābhāsa that arises upon the violation of each characteristic. 5

UNIT—III

7. Answer any *three* of the following questions : 1×3=3

   (a) What is symbolic logic?

   (b) Give the modern definition of a proposition.

   (c) If p is true and q is false, then what will be the truth-value of $p \cdot q$?

   (d) What is the symbol of negative function?

8. Answer any *one* of the following questions : 2

(a) What is a variable? What is a constant?

(b) What is Truth-Table?

9. *(a)* Use truth-table to characterize the following statement-forms as tautologous, contradictory or contingent : 2½+2½=5

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

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

Or

(b) Use truth-table to determine the validity or invalidity of the following argument-forms : 2½+2½=5

(i) $(p \vee q) \supset (p \cdot q)$

$p \vee q$

$\therefore p \cdot q$

(ii) $(p \supset \sim q) \supset (q \vee \sim p)$

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

$\therefore \sim (p \supset \sim q)$

UNIT—IV

10. Answer any *three* of the following questions : 1×3=3

(a) How many elementary rules of inference are there?

(b) State the rule of hypothetical syllogism.

(c) Are the rules of replacement just logical equivalences?

(d) What is the meaning of 'Reductio ad Absurdum'?

11. Answer any *one* of the following questions : 2

(a) State two differences between the rules of inference and the rules of replacement.

(b) State the rules of transposition and exportation.

12. *(a)* Construct formal proof of validity for the following : 2½+2½=5

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

$I \; / \therefore J \cdot K$

(ii) $T \cdot (U \vee V)$

$T \supset [U \supset (W \cdot X)]$

$(T \cdot V) \supset \sim (W \vee X) \; / \therefore W \equiv X$

Or

(b) Construct indirect proof to prove the validity of the following : 2½+2½=5

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

(ii) $(F \vee G) \supset (D \cdot E)$
$(E \vee H) \supset Q$
$F \vee H / \therefore Q$

UNIT—V

13. Answer any *three* of the following questions : 1×3=3

(a) In shorter truth-table method, what truth-value is assigned to the conclusion?

(b) When does an argument become invalid?

(c) Define set.

(d) Who is regarded as the father of set theory?

14. Answer any *one* of the following questions : 2

(a) Briefly explain the two steps employed in the shorter truth-table method.

(b) Distinguish between finite set and infinite set with examples.

15. *(a)* Prove the invalidity of the following argument-forms with the help of shorter truth-table method : 2½+2½=5

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

(ii) $A \supset B$
$B \supset C$
$\therefore C \supset A$

Or

(b) If $A = \{2, 3, 4, 5, 6\}$, $B = \{3, 4, 5, 6, 7\}$ and $C = \{4, 5, 6, 7, 8\}$, then find the following : 2½+2½=5

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

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

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