



**2022/TDC/ODD/SEM/PHIHCC-102T/053**

**TDC (CBCS) Odd Semester Exam., 2022**

**PHILOSOPHY**

**( Honours )**

**( 1st Semester )**

**Course No. : PHIHCC-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 any two of the following questions :**

**2×2=4**

(a) Mention one point of difference between Positive science and Normative science. Is Logic a Positive science?

(b) Can validity or invalidity be predicated of propositions? When does an argument become invalid?

(c) What is Argument-Form? Give an example.



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2. (a) What is Logic? Discuss the nature and scope of logic.  $2+4+4=10$

Or

- (b) (i) Distinguish between Truth and Validity. 5  
(ii) Distinguish between Argument and Argument-form. 5

UNIT—II

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

- (a) Define Proposition. Give an example of Class-membership proposition.  
(b) What are the four kinds of propositions, according to the Four-Fold scheme?  
(c) Name the opposition that exists between 'A and I' and 'I and O' propositions.
4. (a) Discuss the traditional classification of propositions. Mention two limitations of the traditional classification of propositions.  $8+2=10$

Or

- (b) What is opposition of propositions? Discuss the Aristotelian square of opposition. How does it differ from the Boolean square of opposition?  $2+5+3=10$

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UNIT—III

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

- (a) Define Syllogism. Give an example of the fallacy of Four Terms.  
(b) Name the valid moods of the first figure.  
(c) What is Contraposition? Can 'I' proposition be contraposed?

6. (a) Explain the figure and mood of the categorical syllogism : 10  
(i) All snakes are not poisonous.  
(ii) Intelligent boys alone are successful.  
(iii) Men is not perfect.  
(iv) Nurses are always considerate.  
(v) Mangoes are sweet.

Or

- (b) Use Venn diagram technique to determine the validity or invalidity of the following arguments :  $5 \times 2 = 10$   
(i) Some philosophers are mathematicians; hence some scientists are philosophers, because all scientists are mathematicians.

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- (ii) All underwater crafts are submariners; therefore, no submarines are pleasure vessels, because no pleasure vessels are underwater crafts.

UNIT—IV

7. Answer any two of the following questions :

2×2=4

- (a) What is Truth-Function? What is Truth-Table?
- (b) Symbolize the following statements :
- (i) If Sahil is an artist, then either Rohit is a philosopher or Mani is a doctor.
- (ii) If Antony achieves stability, then both Basana and Chitra will adopt more liberal policies.
- (c) Briefly explain the two steps employed in the shorter Truth-Table method.

8. (a) Use Truth-Table to characterize the following statement-forms as tautologous, contradictory or contingent :

2½×4=10

- (i)  $(p \equiv \sim q) \cdot (\sim p \equiv q)$
- (ii)  $p \supset (\sim p \supset \sim q)$
- (iii)  $[(p \supset q) \cdot (q \supset r)] \supset (p \supset r)$
- (iv)  $p \supset [q \vee (p \equiv r)]$

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Or

(b) Prove the validity/invalidity of the following arguments using shorter Truth-Table method : 2½×4=10

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

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

(iii)  $(R \cdot Q) \vee S$   
 $R$   
 $Q / \therefore S \cdot R$

(iv)  $(\sim P \cdot \sim R) \vee (S \cdot Q)$   
 $\sim P \supset S$   
 $Q \vee R / \therefore \sim S \cdot P$

UNIT—V

9. Answer any two of the following questions :

2×2=4

- (a) How many rules of inference are there in formal proof of validity? State the rules of Modus Ponens.
- (b) State the rules of Disjunctive syllogism and Hypothetical syllogism.

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

If Ron buys a new car, then he saves half of his weekly salary for a year. Ron did not save half of his weekly salary for a year. So, Ron did not buy a new car. ( $R, S$ )

10. (a) What is Formal Proof of Validity? State the nine rules of Inference. 1+9=10

Or

(b) Construct formal proof of validity for the following arguments : 5×2=10

(i)  $M \supset N$   
 $N \supset O$   
 $(M \supset O) \supset (N \supset P)$   
 $(M \supset P) \supset Q / \therefore Q$

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

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