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K19U 2427



Reg. No. :

Name :

III Semester B.A. Degree (CBCSS- Reg./Sup./Imp.)
Examination, November - 2019
(2014 Admn. Onwards)
CORE COURSE IN PHILOSOPHY
3B 03 PHI : SYMBOLIC LOGIC AND INFORMATICS

Time : 3 Hours

Max. Marks :40

PART - AAnswer **all** questions.

Each answer carries 1 mark.

- I.** Fill in the blanks with the most appropriate answer. **(4×1=4)**
1. If 'p' is true and 'q' is false, 'p-q' is -----
 2. 'If all humans are rational and X is a human being , then X is rational.'
In this statement the antecedent- consequent relationship is----
 3. In the truth table for 'A B', if both 'A' and 'B' are false their material implication will be ----.
 4. ----- disjunction means that at least one of the disjuncts is true and that at least one of the disjuncts is false.

PART - B

- II.** Answer any **seven** questions. Answers should not exceed **50** words each. Each answer carries **2** marks. **(7×2=14)**
5. Write a note on the use of constants in symbolic logic.
 6. Distinguish between simple and compound statement.
 7. Construct the truth table for the following by using the symbols 'p' and 'q' for the component statements:
Either you will have coffee, or you will have tea.

P.T.O.



8. If 'A' and 'B' are true and 'X' and 'Y' are false, determine the truth value of the following by constructing truth tables:

a) $(A \cdot X) \vee (B \cdot Y)$ b) $\sim A \vee X$

9. Define statement form and present the symbolic expressions of disjunctive, conjunctive and conditional statement forms.

10. Identify the statement form ' $p \vee \sim p$ ' and construct the truth table for it.

11. Define material equivalence and construct the truth table for it.

12. Identify the following argument form and prove its validity/ invalidity by constructing the truth table:

$$\begin{array}{l} p \vee q \\ \sim p \\ q \end{array}$$

13. Define 'elementary valid argument form' and present the symbolic form of Modus Tollens and Addition.

14. Analyze the following statement and explain how the relationship between the antecedent and the consequent is a biconditional:

I can attend the interview if and only if I am qualified in the written test.

PART - C

III. Answer any **four** questions. Answer should not exceed **100** words each. Each answer carries **3** marks. **(4×3=12)**

15. Explain when two materially equivalent propositions become logically equivalent.

16. Name the following symbols and present a table of the truth functional connectives and the proposition types they represent.

$$\bullet, \vee, \cdot, =$$



17. Demonstrate the validity of the following by constructing the formal proof: a) $(A \vee B) \cdot (C \vee D)$

$$A \vee B$$

b) AB

$$A \cdot C$$

$$B$$

18. Find out the specific form of the following and prove its validity/

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

invalidity by truth table method : $A \vee B$

$$A \cdot B$$

19. Present the symbolic form of modus ponens and demonstrate the fallacy of affirming the consequent.

20. Bring out the process of the transition of data into information.

PART - D

IV. Answer any **two** questions. Answers should not exceed **250** words each. Each answer carries **5** marks. **(2×5=10)**

21. Explain the principle of double negation by means of the truth table.

22. Present the symbolic expressions of logical equivalence formulated in De Morgan's theorems with the truth table.

23. Bring out the etymology of 'informatics' and analyze the role of internet as a physical infrastructure.

24. Explain the procedure of constructing the truth table for an argument form containing the variable 'p' and 'q'.