K22U 2740

Reg. No. : .....

Name : .....

Third Semester B.A. Degree (CBCSS – Supplementary) Examination, November 2022

(2016-18 Admissions)

CORE COURSE IN PHILOSOPHY

3B03 PHI : Symbolic Logic and Informatics

Time : 3 Hours Max. Marks : 40

PART – A

Answer **all** questions. **Each** answer carries **1** mark.

1. State the rule of inference for the following argument.
   $(A \supset \sim B) \cdot (\sim C \supset D)$
   $\therefore A \supset \sim B$
2. "It is not the case that 'p' is true and 'q' is false" is symbolized as _____
3. A statement form that has only true substitution instances is called _____
4. '≡' is the symbol for _____ **(4×1=4)**

PART – B

Answer **any seven** questions. Answer should **not** exceed **50** words. **Each** question carries **2** marks.

5. How do computers process data into information ?
6. Write a short note on virtual reality.

P.T.O.

7. Symbolize the following by using the letters given in brackets :
   a) *If* Ramesh is the President, *then* Ramesh is Famous (R, F)
   b) Ganesh and Dhinesh will not both be selected (G, D)
8. Explain contradictory statement form.
9. Define formal proof of validity.
10. What is the negation of a contingent form ? Why ?
11. If A, B and C are true and X, Y and Z are false, find out the truth value of the following :
    $(A \cdot X) \vee (B \cdot Y)$
12. Define conjunction.
13. Write a short note on constant symbols.
14. Define modus ponens and give its symbolic form. **(7×2=14)**

PART – C

Answer **any four** questions. Answer should **not** exceed **100** words. **Each** question carries **3** marks.

15. Construct the formal proof of validity of the following :
    $A \supset B$
    $B \supset C$
    $C \supset D$
    $\sim D / \therefore \sim A$
16. Construct truth table for the following formula.
    $(P \supset Q) \cdot \sim (P \supset Q)$
17. If A, B and C are true and X, Y and Z are false, but the values of G, H and I are unknown, find out the truth value of the following.
    $\sim (X \vee \sim Y) \supset [G \equiv (\sim H \cdot I)]$

18. What is Artificial Intelligence ? Explain.
19. State the justification for the given proof of validity.
    1) $F \vee (G \vee H)$
    2) $(G \supset I) \cdot (H \supset J)$
    3) $(I \vee J) \supset (F \vee H)$
    4) $\sim F$ /∴H
    5) $G \vee H$
    6) $I \vee J$
    7) $F \vee H$
    8) H
20. Write a note on disjunction and distinguish between inclusive and exclusive disjunction. **(4×3=12)**

PART – D

Answer **any two** questions. Answer should **not** exceed **250** words. **Each** question carries **5** marks.

21. State and explain De Morgan's theorem with the help of truth table.
22. Explain the logical connectives such as 'conjunction', 'disjunction', 'negation' 'implication' and 'Material Equivalence' with the help of Truth Tables.
23. Bring out the main advantages of using symbols in logic. Explain the different types of symbols used by modern logicians.
24. Present the symbolic form of nine elementary valid argument forms. **(2×5=10)**