TB244310Z

Reg. No :.....

Name :.....

BACHELOR'S DEGREE (C.B.C.S) EXAMINATION, MARCH 2024

2022 ADMISSIONS REGULAR

SEMESTER IV -Economics COMPLEMENTARY COURSE 2 (LOGIC)

EC4C03B18 - Symbolic Logic

Time : 3hrs Hours **Maximum Marks : 80**

Part A

I. Answer any Ten questions. Each question carries 2 marks **(10x2=20)**

1. What is the directive function of language?
2. What are the advantages of symbolization?
3. Write the symbolic expression of ' p if and only if q'.
4. Write the symbolic expression of ' p and not p '.
5. Define compound proposition.
6. Differentiate between variables and constants.
7. Which statement form can be inferred from following ? a. p . p.
8. What is argument form?
9. Which statement form can be inferred from following ? a. p. ~ p
10. Name the following valid argument form. p v q ~ p ∴ q
11. What is conditional proof ?
12. Define quantification.

Part B

II. Answer any Six questions. Each question carries 5 marks **(6x5=30)**

13. Write a note on different types of symbols used in logic.
14. Compare between bi-conditional statements and implicative statements.
15. Distinguish between simple and compound proposition.
16. Draw the Truth Table for implication and explain.
17. prove the invalidity of the following arguments. a. p ⊃ ~ q b. (p ⊃ q) ⊃ r p v r p v r r ≡ p q v r ∴ ~(p ∘ q)
18. Give an account of contradictory statement forms.
19. Prove the invalidity of the following argument. p ⊃ [(q ∘ r) ∘ (s ∘ t)] p (q ∘ r) ∘ (s ∘ t)
20. Explain De Morgan's theorem.
21. Comment on existential quantifier.

Part C

III. Answer any Two questions. Each question carries 15 marks **(2x15=30)**

22. Discuss different truth functional compound statements with their truth tables.
23. Use truth table to decide which of the following statement forms are as tautologous, self contradictory or contingent. a.(p ⊃ q) ∘ ~ (p ⊃ q). b. [(p ⊃ q) ∘ (q ⊃ p)] ≡ [(p ~p q) v (~p ∘ ~q)] c. (p v q) ⊃ [(~p ∘ r) v (~q ∘ r)]
24. Construct formal proof of validity for the following argument. a. (K V L) ⊃ (M V N) b. (T ⊃ U) ∘ (V ⊃ W) c. ~X ⊃ Y (M V N) ⊃ (O ∘ P) (U ⊃ X) ∘ (W ⊃ Y) Z ⊃ X K T ~X ∴ O ∴ X V Y ∴ Y ∘ ~Z
25. Explain quantification theory.