TB254583G

Reg. No :.....

Name :.....

BACHELOR'S DEGREE (C.B.C.S) EXAMINATION, MARCH 2025

2018, 2019, 2020, 2021, 2022 ADMISSIONS SUPPLEMENTARY

ECONOMICS SEMESTER IV - 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 are the advantages of symbolization?
2. Differentiate between traditional logic and symbolic logic.
3. What are the component parts of the conditional statements?
4. Briefly explain conjunction.
5. Differentiate between variables and constants.
6. Define compound statement.
7. Which statement form can be inferred from following ? a. p v ~ p.
8. Define statement forms.
9. State contingent statement forms.
10. Identify the rule. p ∘ (q v r) ≡ (p ∘ q) v (p ∘ r)
11. Identify the following valid argument form. p ⊃ q ~q ∴~ p
12. What is predicate logic?

Part B

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

13. Elaborate on expressive function of language.
14. Write a note on constants symbols in logic?
15. Explain negation with truth table.
16. Compare between bi-conditional statements and implicative statements.
17. Determine the validity of the following argument using truth table method. p ⊃ q r ⊃ s p ∘ r ∴ q ∘ s
18. Find out whether a given proposition is tautology, contradictory or contingent. { [(p ⊃ q) ∘ (r ⊃ s)] ∘ (q v s)} ⊃ (p v r).
19. Explain tautologous statements.
20. Explain De Morgan's theorem.
21. Symbolize following using quantification. a. Something is not mortal. b.Nothing is mortal. c.All members are either girls or boys d.Apples and bananas are nourishing. e.some students are both smart and hardworking.

Part C

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

22. What is truth functional compound statements? Explain the kinds and characteristics of it.
23. Use truth table to decide which of the following are tautologous. a. p ≡ [p ∘ (p v q)]. b. [p ∘ (q v r)] ≡ [(p ∘ q) v (p ∘ r)] c. [(p ∘ q) ⊃ r] ≡ [p ⊃ (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. Write essay on preliminary rules of quantification.