TB242364T

Reg. No :.....

Name :.....

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

2023 ADMISSIONS REGULAR

SEMESTER II - COMPLEMENTARY COURSE 1

EC2B02B23 - Symbolic Logic

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

Part A

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

1. Write a short not on directive function of language.
2. Briefly explain informative function of language.
3. What are disjuncts?
4. What is an atomic proposition?
5. Distinguish between simple and compound proposition.
6. Define Conjuncts?
7. What is contingent statement form.
8. What do you mean by truth table method?
9. Differentiate between truth table method and shorter truth table method.
10. Symbolize the rule of conjunction.
11. Identify the following valid argument form. p ⊃ q p ∴ q
12. What is truth tree method?

Part B

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

13. How can you describe the relation between language and symbolic logic?
14. What is an argument? and explain the validity of an argument.
15. Draw the Truth Table for implication and explain.
16. If A, B, and C are true statements and X, Y, and Z are false statements, determine the truth/falsity of the following. a. (A ⊃ B) ⊃ Z. b. (X ⊃ Y) ⊃ Z. c. ~(C • Y) v (A • Z). d. (X v Y) • (X v Z). e. ~(A v C) v ~ (X • ~ Y).
17. Give an account of contingent statement forms.
18. Prove the invalidity of the following argument. (A v B) ⊃ (C • D) (D v E) ⊃ F ∴ A ⊃ F
19. Determine the validity of the following argument using truth table method. p ⊃ q r ⊃ s p • r ∴ q • s
20. Provide proof for the following argument. (~M • ~N) ⊃ (O ⊃ N) N ⊃ M ~ M ∴ ~O
21. Differentiate between shorter truth table method with truth tree method using examples.

Part C

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

22. What is symbolic logic? Discuss the characteristics of symbolic logic and how it is different from classical logic.

23. Identify the following statement forms are whether tautology, contradiction or contingent. a. [p • (q v r)] ≡ [(p • q) v (p • r)]. b. [([p • q) ⊃ r] ≡ [p ⊃ (q ⊃ r)]. c. [p v (q • r)] ≡ [(p v q) • (p v r)].
24. Construct formal proof of validity for the following arguments. a. (A v B) ⊃ C b. M ⊃ N (C v B) ⊃ (A ⊃ D) N ⊃ O A • D (M ⊃ O) ⊃ (N ⊃ P) ∴ D v F (M ⊃ P) ⊃ Q ∴ Q
25. Test the validity of the arguments using truth tree method. (p ≡ q) ⊃ (r ≡ s) q v ~s s ∴ ~ p v r