TB174245D Reg.No:.....

Name.....

B. A. DEGREE (C.B.C.S.S) EXAMINATION, MARCH 2025
(2017 & 2016 Admissions Supplementary)
SEMESTER IV - COMPLEMENTARY COURSE (ECONOMICS)
EC4C02B - SYMBOLIC LOGIC

Time: Three Hours **Maximum Marks: 80**

PART A

I. Answer all questions. Each question carries 1 mark.

1. If A is true, X is false which if the following are true.
   a) ~AvX b) XɔA
2. The language used to express feeling, emotions, attitude etc. is serving _____function.
3. In logic, validity and invalidity is attributed to argument, whereas truth and falsehood is attributed to _____.
4. Represent the rule of Double Negation.
5. Translate the following statement by using quantification method.
   All parrots are birds.
6. Define universal quantifier.

(6x1=6)

PART B

II. Answer any seven questions. Each question carries 2 marks.

7. Write a note on Directive function of language.
8. List any two rules of replacement.
9. What are logical variables?
10. Differentiate between simple and compound statement.
11. Construct a truth table for tautological statement form.
12. Symbolize the statement 'Allmen are mortal' and 'No men are mortal' by using Quantification theory.
13. Give the symbolic form of the statement "Jamal and Derek will not both be elected.
14. Define Symbolic logic.
15 State De Morgan's rule.
16. Construct formal proof of validity.
    YɔZ
    Y/∴Y·Z

(7x2=14)

PART C

III. Answer any five questions. Each question carries 6 marks.

17. Describe the role of Language in logic.
18 Differentiate between truth, validity and soundness of argument.
19. Is disjunction a truth functional compound statement? Examine with the help of a truth table.
20. Use truth tables to determine the following statement forms as tautologous, contradictory or contingent.

a) (p⊃q) v p
b)p⊃ (p•q)
c) p. ~ p

21. Give justification for each numbered line that is not a premise.
    1. A·B
    2. (Avc)ɔD /∴ A·D
    3. A ----------
    4. AvC ----------
    5. D· ----------
    6. A·D· ----------

22. Use the first four rules of inference to derive the conclusions of the following symbolized arguments:

    1. $(K \bullet O) \supset (N \vee T)$

    2. $K \bullet O$ $/ N \vee T$

23. State the three functions of language.
24. Differentiate between traditional Logic and symbolic logic.

(5x6=30)

PART D

IV. Answer any two questions. Each question carries 15 marks.

25. Briefly explain the implicative and bi-conditional function with the help of truth table.
26. Define formal proof of validity and present any five rules of replacement.
27. Use truth-table method to determine the validity of the argument.
    1. ~XɔY
    2. ZɔX
    3. ~X /∴ **Y·~Z**
28. Use truth-table to determine the validity of the argument.
    (RvS)ɔT
    Tɔ(R·S)/∴ **(R·S)ɔ (RvS)**

(2x15=30)

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