B.A. DEGREE EXAMINATION APRIL 2024
BRANCH III - SOCIOLOGY
FOURTH SEMESTER

COURSE   : **MAJOR ELECTIVE**
PAPER   : **LOGIC AND SCIENTIFIC METHODS**
SUBJECT CODE : **19SC/ME/LS45**
TIME   : **3 HOURS**   **MAX. MARKS: 100**

SECTION– A
ANSWER ALL QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 50 WORDS :
                   (10X 2 = 20)

1. Identify the figure and mood of the following syllogism
 All rich men are honoured
 Some rich men are fools

 ─────────────────

 ∴ Some fools are honoured

 ─────────────────────

2. What proposition is : FIRE!
3. Define Logic
4. What kind of a term is 'Deaf '?
5. Arrange the following in descending order of connotation
 Figures, Equilateral triangle, Triangle.
6. Draw the symbols for the following (i) and (ii) negation (iii) either or (iv) if then
7. Identify the valid form from the following
 (a) $[\,(p \supset q)\,.\,p\,] \supset q$
 (b) $(p \supset q) \supset \sim(\sim q \supset \sim p)$
8. Construct truth table and determine validity of the argument $p \supset q$
9. Pointing to a girl a boy said, "She is the daughter of the only sister of my father". How is the boy related to the girl.
10. If C= P . (Q+R) , then what is the dual of C ?

SECTION– B
ANSWER ANY FIVE QUESTIONS EACH ANSWER SHOULD NOT EXCEED 250 WORDS :
                   (5 X 8 = 40)

11. What are terms? Explain Denotation and Connotation.
12. Explain AEIO proposition and its distribution.
13. Explain any five type of fallacies.
14. Give the form of simple constructive dilemma with suitable examples.
15. If P,Q,R are True and A,B and C are True determine the following
$\{\,[\,(P \lor Q)\,.\,(R \lor A)] \supset [\,(\sim B \lor C)\,.\,(R \lor P)\,p\,]\,\}$
16. Explain the joint method of Agreement and Difference to identify the probable causes using a relevant example.
17. Construct the truth table and steps of deriving decision for the following
$[\,(p \supset (\sim q \supset r)\,.\,\{\,(p\,.\sim r) \lor q\}] \supset (\sim q\,.\,p)$
18. Illustrate and compare the functions of NAND and NOR.

SECTION– C
ANSWER ANY TWO QUESTIONS EACH ANSWER SHOULD NOT EXCEED 1200 WORDS :   **(2 X 20 = 40)**

19. Examine modern and Traditional classification of Propositions.
20. Draw and explain Opposition of Proposition.
21. Write in detail about the logical gates – AND, OR, NOT NAND, NOR, XOR & XNOR operations.
22. Illustrate the process of construction of Truth table and determining the validity or invalidity of the arguments showing examples for each of the following contingent, tautologous or self-contradictory.

****