



‘समानो मन्त्रः समितिः समानी’

UNIVERSITY OF NORTH BENGAL
B.A. Honours 3rd Semester Examination, 2023

CC7-PHILOSOPHY
WESTERN LOGIC-II

Time Allotted: 2 Hours

Full Marks: 60

The figures in the margin indicate full marks.

SECTION-I

1. Answer any *four* questions of the following: 3×4 = 12
- (a) What do you mean by Predicate logic — Explain. 3
- (b) What do you mean by singular proposition? Give an example. 3
- (c) Do you think that Truth Tree method is a decision procedure? Explain. 3
- (d) What is C.N.F.? Give an example. 3
- (e) What is an explanation? 3
- (f) Transfer the following stroke function into statement form: 3
- $(p | q) | (p | p)$

SECTION-II

2. Answer any *four* questions of the following: 6×4 = 24
- (a) Transform the following into stroke function: 3+3
- (i) $(A \cdot B) \supset C$
- (ii) $(p \supset q) \vee p$
- (b) Prove the invalidity of the following: 3+3
- (i) $(\exists x)(Mx \cdot Wx)$
- $(\exists x)(Mx \cdot Ox) / \therefore (x)(Ox \supset Nx)$
- (ii) All Generals are handsome, Some Intelligents are handsome, Therefore, Some Generals are Intelligents. (Gx, Hx, Ix)
- (c) Transform the following into CNF: 3+3
- (i) $(p \supset q) \cdot (\sim q \supset \sim p)$
- (ii) Transform the following into DNF:
- $(p \supset q) \cdot (p \cdot \sim q)$

- (d) (i) What is the probability of getting six at least once in the six attempts of a dice? Explain. 3+3
 (ii) What is the probability of getting tails every time in three tosses of a coin?
 (e) Write a note on a-priori theory of probability. 6
 (f) Explain the method of Agreement with examples. 6

SECTION-III

Answer any two questions of the following

12×2 = 24

3. Construct formal proof of validity for the following: 4+4+4
 (i) $(x)(Bx \supset Wx)$
 $(x)(Wx \supset \sim Vx) / \therefore (x)(Vx \supset \sim Bx)$
 (ii) $(\exists x)(Jx \cdot Kx)$
 $(x)(Jx \supset Lx) / \therefore (\exists x)(Lx \cdot Kx)$
 (iii) All poets are happy. Some dancers are happy. Therefore, some poets are dancers also (Px, Hx, Dx).
 4. Test the validity or invalidity of the following arguments by Truth-Tree Method: 4+4+4
 (i) $A \rightarrow B$
 $\sim A \rightarrow C$
 $\sim B / \therefore \sim C$
 (ii) $A \leftrightarrow B$
 $\sim(A \cdot B) / \therefore \sim A \cdot \sim B$
 (iii) If Holmes is mad or Watson is indifferent, morality will escape. Therefore, Morality will escape unless Holmes is mad.
 5. Explain Mill's method of Concomitant Variation with examples. 12
 6. Explain the different criteria that are commonly used in judging the acceptability of a hypothesis. 12

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