



'समानो मन्त्रः समितिः समानी'

**UNIVERSITY OF NORTH BENGAL**  
B.A. Honours 3rd Semester Examination, 2022

**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 is normal form? What are its different types? 3
- (b) What is Mill's formulation of the method of Agreement? 3
- (c) Transform the following stroke function into statement form: 3  
 $(P/(P/P))/(P/P)$
- (d) What do you mean by inductive Generalization? 3
- (e) What is quantifier? What do you mean by universal quantifier? 3
- (f) Translate the following sentences with the help of Individual variables and quantifiers. 1½ × 2 = 3
- (i) Bats are mammals                      (ii) Grapes are sweet.

**SECTION-II**

2. Answer any **four** questions from the following: 6×4 = 24
- (a) Prove the invalidity of the following: 3+3
- (i)  $(x) \cdot (Gx \supset Hx)$   
 $(x) \cdot (Gx \supset Ix) / \therefore (x) \cdot (Ix \supset Hx)$
- (ii) Some politicians are leaders. Some leaders are not orators. Therefore, some orators are not politicians.  $(Px, Lx, Ox)$
- (b) (i) Transform the following into CNF 3+3  
 $(p \cdot q) \supset r$
- (ii) Transform the following into DNF  
 $(p \supset q) \cdot (p \cdot \sim q)$

- (c) Transform the following into stroke function: 3+3
- (i)  $(p \vee q) \supset r$
- (ii)  $p \supset (q \supset r)$
- (d) (i) What is the probability of getting tail at least once in three tosses of a coin? 3+3
- (ii) What is the probability of getting three aces in three successive draws from a deck of cards if the card drawn is replaced before making the next drawing?
- (e) Explain the concept of ad-hoc hypothesis with examples. 6
- (f) Discuss a-posteriori theory of probability. 6

### SECTION-III

**Answer any two questions of the following**

12×2 = 24

3. Construct formal proof of validity of the following: 4+4+4
- (i)  $(x) \cdot (Hx \supset \sim Px)$   
 $(x) \cdot (Gx \supset Hx) / \therefore (x) \cdot (Px \supset \sim Gx)$
- (ii)  $(x) \cdot (Dx \supset Ex)$   
 $(x) \cdot (Ex \supset Fx) / \therefore (x) \cdot (Dx \supset Gx)$
- (iii) All dancers are exuberant. Some fencers are exuberant. Therefore some fencers are not dancers.  
 $(Dx, Ex, Fx)$
4. Test the validity or invalidity of the following arguments by truth-tree method. 4+4+4
- (i)  $A \rightarrow B$   
 $A \rightarrow C / \therefore [A \rightarrow (B \& C)]$
- (ii)  $A \rightarrow \cdot (B \rightarrow C)$   
 $A \rightarrow \cdot C / \therefore A \rightarrow B$
- (iii) Min is in home or on board. Hen is in home or on board. They are not both on board. Therefore, Min is in home or Hen is in home.
5. State and explain joint method of agreement and difference with examples. 12
6. What is explanation? Distinguish between scientific and unscientific explanation. 2+10

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