UNIVERSITY OF NORTH BENGAL

B.A. Honours 3rd Semester Examination, 2021

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 from the following: 3×4 = 12

   (a) What is CNF? Give example.

   (b) What do you mean by Inductive generalization?

   (c) What is decision procedure?

   (d) What is Mill's formulation of the method of difference?

   (e) Transform the following stroke function into statement form:

   $$(p\,/\,q)\,/\,(p\,/\,p)$$

   (f) When an argument is valid in truth tree?

SECTION-II

2.   Answer any *four* questions from the following: 6×4 = 24

   (a) Transform the following into stroke function: 3+3

   (i) $(A \supset B) \vee C$

   (ii) $(A \cdot \sim B) \supset C$

   (b) Prove the invalidity of the following: 3+3

   (i) $(x)(Ex \supset \sim Fx)$

   $(x)(Fx \supset Gx)$

   $\therefore (x)(Gx \supset \sim Ex)$

   (ii)   All generals are handsome. Some intellectuals are handsome. Therefore some generals are intellectuals. (Gx, Hx, Ix)

   (c) Discuss a-priori theory of Probability.   6

   (d) What is meant by crucial experiment? Discuss.   6

(e) Transform the following into CNF and DNF. 3+3

$p \lor q \lor r$

(f) Calculate the Probability of the following: 3+3

(i) What is the Probability of getting tails everytime in three tosses of a coin?

(ii) What is the Probability of getting Nine (9) in throwing two dies at a time?

SECTION-III

3. Answer any *two* questions from the following: $12 \times 2 = 24$

(a) Construct formal proof of validity for the following: 4+4+4

(i) $(x)(Vx \supset Wx)$

$(x)(Wx \supset \sim Xx) / \therefore (x)(Xx \supset \sim Vx)$

(ii) $(\exists x)(Px \cdot \sim Qx)$

$(x)(Px \supset Rx) / \therefore (\exists x)(Rx \cdot \sim Qx)$

(iii) All jesters are knaves. No knaves are lucky. Therefore, no jesters are lucky. (Jx, Kx, Lx)

(b) Test the validity or invalidity of the following arguments by truth-tree method: 4+4+4

(i) $A \rightarrow B$

$B \rightarrow C$

$C \rightarrow D / \therefore A \rightarrow D$

(ii) $A \rightarrow B$

$- A \rightarrow C$

$- B / \therefore - C$

(iii) We shall swim even if it rains.

$\therefore$ We shall swim.

(c) State and explain Method of Agreement with example. Is it a method of Proof? Explain. 8+4

(d) Explain the different criteria that are commonly used in judging the acceptability of a hypothesis. 12

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