



বিদ্যাসাগর বিশ্ববিদ্যালয়

VIDYASAGAR UNIVERSITY

B.A. Honours Examination 2021

(CBCS)

4th Semester

PHILOSOPHY

PAPER—C9T

WESTERN LOGIC—II

Full Marks : 60

Time : 3 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any four questions.

4×15

1. (a) What is truth functional compound statement?

(b) Define (with the help of defining truth table) different types of truth functional compound statement.

(c) Give an example of non-truth functional statement.

3+10+2

2. (a) What is material implication?

(b) Explain the paradoxes of material implication.

(c) How can these paradoxes be resolved?

6+4+5

3. (a) Distinguish between Material equivalence and Logical equivalence.

(b) Determine the validity of the following using truth table :

$$(p \cdot q) / \therefore \sim q \supset \sim p$$

$$(p \cdot q) / \therefore p \supset (p \cdot q)$$

$$A \supset (B \cdot A)$$

$$A \cdot B / \therefore B \cdot A$$

$$(p \cdot q) \cdot \sim p$$

$$p \vee \sim p / \therefore p \cdot \sim p$$

4. (a) What is formal proof of validity?

(b) What are the differences between Rules of Inference and Rules of Replacement?

(c) Construct formal proof of validity (any two) :

i. $(H \vee \sim H) \supset G / \therefore G$

ii. $(\exists x) (Bx \cdot Dx) / \therefore (\exists x) (Cx \cdot Bx)$

iii. Hume was sceptic, but Locke was not. So every one is either sceptic or not a sceptic.

3+4+8

5. (a) What is Reductio ad Absurdum Method?

(b) Prove the invalidity of the following :

$$i. \quad \sim(E \cdot F)$$

$$(\sim E \cdot \sim F) \supset (G \cdot H)$$

$$H \supset G / \therefore G$$

(ii) Some politicians are leaders. Some leaders are not orators.
Therefore some orators are not politicians. 7+(4+4)

6. (a) What is propositional function?

(b) What are the differences between propositional function and truth function?

(c) What are four rules of inference regarding quantification? 2+5+8

7. (a) What is individual?

(b) What is singular proposition? Give example.

(c) Translate the following using quantifiers, individuals, variable etc :
(any four)

(i) Jackson is a good singer.

(ii) Apples and Oranges are delicious and nutritious.

(iii) Oranges are sweet if they are ripe.

(iv) Not all tools that are cheap are either soft or breakable.

(v) He is coward who deserts.

2+5+(2×4)

8. (a) What is an argument?

(b) Distinguish between :

(i) a statement and a statement form.

(ii) an argument and an argument form.

(c) Use truth table to characterise the following statement forms as tautology, self contradictory or contingent :

(i) $\sim (p \cdot q) \sim (\sim p \vee \sim q)$

(ii) $(p \cdot q) \supset [(p \vee q) \cdot q]$

(iii) $[p \supset (p \cdot p)]$

(iv) $p \supset [p \cdot (p \cdot \sim q)]$

$3+(2+2)+(2 \times 4)$