5 SEM TDC PHI M 2

2 0 2 2

(December)

PHILOSOPHY

(Major)

Course : 502

[**Logic (Western)**]

Full Marks : 80

Pass Marks : 32/24

Time : 3 hours

The figures in the margin indicate full marks
for the questions

1. Find out the correct answer :   1×8=8

   (a) The concept of validity can / cannot be applied to proposition.

   (b) The relation between two propositions which have same subject and same predicate but differ in quality and quantity is called contrary / contradictory opposition.

   (c) The predicate of the conclusion of syllogism is called major / minor term.

   (d) There are four / five valid moods in the Second figure of syllogism.

(Turn Over)

(2)

(e) If the truth value of 'p' is true and 'q' is also true, the truth value of p.q is true / false.

(f) De Morgan's theorem is a kind of rules of inference / rules of replacement.

(g) In quantification 'there is at least one' is symbolized as (X) / $(\exists x)$.

(h) Problem of induction is raised by Hume / John Venn.

2. Write short notes on any *four* of the following :

$4 \times 4 = 16$

(a) Truth and validity

(b) Nature of logic

(c) Truth function

(d) Universal quantifier

(e) Working hypothesis

3. What is simple proposition? Explain different kinds of simple proposition with suitable example.

$2 + 9 = 11$

Or

Explain the square of opposition of proposition with suitable examples.

11

(3)

4. Explain the characteristics and structure of syllogism.

$6 + 6 = 12$

Or

Test the validity of the following syllogistic forms by means of a Venn diagram :

$3 \times 4 = 12$

(a) AAA in the First figure

(b) AOO in the Second figure

(c) AII in the Third figure

(d) EIO in the Fourth figure

5. Construct truth table for the following and find out whether they are tautologies, contradictories or contingent expressions :

$2 + 2 + 2 + 2 + 3 = 11$

(a) $p \supset (p \supset p)$

(b) $p \supset (\sim p \sim q)$

(c) $(p \vee \sim q) \cdot (p \supset q)$

(d) $p \supset [\sim p \supset (q \vee \sim q)]$

(e) $(p \supset q) \vee [(\sim p \cdot q) \supset r]$

Or

Construct formal proofs of validity of the following :

$3 + 4 + 4 = 11$

(a) $A \cdot B$

$(A \vee C) \supset D / \therefore A \cdot D$

(b) $A \supset B$

$A \vee (C \cdot D)$

$\sim B \cdot \sim E / \therefore C$

(c) $(E \lor F) \supset (G \cdot H)$
$(G \lor H) \supset I$
$E \, / \therefore I$

6. What is predicate logic? Write on the rules of quantification. $3+8=11$

Or

Symbolize the following propositions using quantifier : $2+2+2+2+3=11$

(a) Nothing is perfect.

(b) There are no angels.

(c) Few men are honest.

(d) All humans are mortal.

(e) Some students are hardworking or modest.

7. Discuss the problem of logical justification of induction. 11

Or

What are the stages of hypothesis? Explain its different kinds. $2+9=11$

★ ★ ★