2014

PHILOSOPHY

( Major )

Paper : 1.1

( Logic—I )

Full Marks : 80
Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Answer the following in 1 or 2 word(s) each as directed : 1×10=10

(a) Is logic normative?

(b) Logic provides methods and criteria for differentiating correct reasoning from incorrect ones. Is it true?

(c) Can the logical constant ‘Not’ (~) be used to connect two statements?

(d) Does a variable possess a definite meaning?

(e) Is ~ p a truth function?

A15—3500/85 ( Turn Over )
What will be the truth value of \( p \lor q \), if \( p \) is true and \( q \) is false?

How many kinds of propositions are there according to the modern classification of propositions?

State the name of the proposition which asserts a relation between two or more constituents.

State the name of the logician who recognized the importance of sets in logic.

Two sets having the same member are called ——. (Fill in the blank)

2. Answer very briefly:
   \( 2 \times 5 = 10 \)
   
   (a) Give an example of an argument form.
   
   (b) Define a variable.
   
   (c) Symbolize the following proposition using logical constant and propositional variable:
   "The weather is not bright"
   
   (d) Give an example of class-membership proposition.
   
   (e) What is a finite set?

3. Answer any four briefly:
   \( 5 \times 4 = 20 \)
   
   (a) Write a short note on 'logic as both a science and an art'.
   
   (b) What do you mean by logical constants?
   
   (c) Define truth function with an example. What are its basic forms?
   
   (d) How do you explain the relation between sentence and proposition?
   
   (e) What are subjectless proposition and subject-predicate proposition? Give examples.
   
   (f) What do you understand by an empty set?

4. Define an argument with example. State the nature of an argument. \( 4 + 6 = 10 \)
   
   Or

   Explain the relation between validity or invalidity of an argument and the truth or falsehood of its premises and conclusion. \( 10 \)

5. What is truth table? What is a decision procedure? Why is truth table method called a decision procedure? What are the basic functions of truth table method? Explain. \( 2 + 2 + 3 = 10 \)
(4)

Or

Use truth tables to characterize the following as tautologous, contradictory or contingent:

\[ 5 \times 2 = 10 \]

(i) \[ (p \lor q) \supset \{ \neg (p \cdot q) \lor (p \lor q) \} \]

(ii) \[ \neg \{ \neg (p \supset q) \lor (p \supset q) \} \]

6. What is a compound proposition? Define each of the different forms of compound proposition with examples.

Or

What do you mean by general proposition? Illustrate the different forms of general proposition.

7. Write short notes on the following:

(a) The concept of set

(b) Domain of individuals

Or

Explain two operations on sets with example.