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63/2 (SEM-3) PHL 905S

2021

(held in 2022)

PHILOSOPHY

(Theory Paper)

Paper Code : PHL-905S

(Modern Logic-1)

Full Marks – 80

Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct one : 1×6=6

(a) Predicate logic is also known as

(i) Propositional logic

(ii) Modern logic

(iii) Symbolic logic

(iv) Quantifier logic

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(b) An argument is said invalid when

(i) premises are true and conclusion is false

(ii) Premises are true and conclusion is true

(iii) Premises and conclusion both are false

(iv) Premises are false and conclusion is true.

(c) Relations between two individuals are called

(i) binary (ii) truth-functional

(iii) ordinary (iv) traditional

(d) Function is simply a special kind of

(i) concept (ii) relation

(iii) notation (iv) matter

(e) If A and B are sets which have exactly the same members, then

(i) $A \cup B$ (ii) $A = B$

(iii) $A \cap B$ (iv) $A \subset B$

(f) To symbolise a singular proposition we need one / two / three / four symbols.

2. Answer in brief : 2×5=10

(a) What is the need of predicate logic ?

(b) What is the condition to prove the invalidity of an argument ?

(c) What is binary relation ?

(d) What do you mean by set ?

(e) What is converse of function ?

3. Answer any *six* of the following questions : 5×6=30

(a) What do you mean by quantifier logic ?

(b) What do you mean by quantification ?

(c) Write a note on operations on relations.

(d) What are attributes of relations ?

(e) What is identity ?

(f) What is ordered couples ?

(g) Write a note on inclusion in set theory.

(h) Give definition of function with examples.

(i) What do you mean by operations on functions ?

4. Answer any *two* of the following questions : 10×2=20

(a) Symbolise the following sentences with quantifier.

(i) Everything is movable.

(ii) It is not the case that everything is movable

(iii) Somethings are solid or liquid.

(iv) Some land animals are intelligent.

(v) All grass snakes are harmless.

(b) Discuss equivalence relations in set theory.

(c) Explain the method of proof of involving relations.

5. Answer any *one* of the following : 14×1=14

(a) Construct a proof for validity of arguments by quantification rules.

(b) Discuss ordering relations in set theory.