TDC (CBCS) Odd Semester Exam., 2021
held in March, 2022

PHILOSOPHY

(5th Semester)

Course No. : PHIGE-501T

(Logic)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

SECTION—A

Answer any *twenty* of the following questions : 1×20=20

1. Is logic a normative science?

2. Mention any one fundamental law of thought.

3. What is the truth value of a proposition?

4. Is logic concerned with formal truth or material truth or both?

5. What is the ideal of logic?

6. Give an example of E proposition.

7. Which term is distributed in a proposition?

8. If E proposition is true, then what is the truth value of O proposition?

9. Convert the following sentence into logical proposition :

   "Only honest persons are happy."

10. How many oppositions of proposition are there according to Aristotle?

11. What is immediate inference?

12. State one rule of obversion.

13. Write one valid mood of Second Figure.

14. What is the position of middle term in the Third Figure?

15. How many propositions are there in syllogism?

16. What is the symbol of implication?

17. If p is true and q is false, then what is the truth value of $p \vee q$?

18. Mention one utility of symbols in logic.

19. Symbolize the following sentence :
    "It is not the case that either Joly or Riya will win the match."

20. How many basic truth functions are there in logic?

21. How many rules of inference are there in formal proof of validity?

22. State the rule of disjunctive syllogism.

23. State the rule of hypothetical syllogism.

24. State the rule of Modus Tollens.

25. State the rule of absorption.

SECTION—B

Answer any *five* of the following questions : 2×5=10

26. Define logic.

27. Define argument.

28. Define universal proposition.

29. What is a general proposition?

30. Define conversion.

31. State the rule of syllogism related to quantity.

32. Define tautology.

33. If A and B are true statements, and X and Y are false statements, determine the truth value of the following statement form :

$$(A \supset \sim B) \vee (\sim Y \cdot X)$$

34. Define formal proof of validity.

35. For the following argument, state the rule of inference by which its conclusion follows from the premise :

$$(A \cdot B) \supset C$$
$$\therefore (A \cdot B) \supset [(A \cdot B) \cdot C]$$

SECTION—C

Answer any *five* of the following questions : 8×5=40

36. Explain the nature and scope of logic. 4+4=8

37. Explain the relation between truth and validity with examples. 8

38. What is simple proposition? What are its different forms? Explain each of them with examples. 2+2+4=8

39. What do you mean by opposition of proposition? Explain the traditional square of opposition with examples. 2+6=8

40. Convert, obvert and contrapose the following : 2+2+4=8

(a) All men are mortal.

(b) Some students are not honest.

41. Test the validity or invalidity of the following syllogism by means of Venn diagram : 4+4=8

(a) Some reformers are philosophers,
So some idealists are philosophers,
Since all reformers are idealists.

(b) Some mammals are not horses,
For no horses are centaurs, and
All centaurs are mammals.

42. Use truth table to characterize the following statement forms as tautologous, contradictory or contingent : 4+4=8

(a) $[p \supset (p \supset q)] \supset q$

(b) $p \supset [(p \supset q) \supset q]$

43. Use truth table to determine the validity or invalidity of the following argument forms : 4+4=8

(a) $(p \vee q) \supset (p \cdot q)$
$\sim(p \vee q)$
$\therefore \sim(p \cdot q)$

(b) $(p \vee q) \supset (p \cdot q)$
$p \cdot q$
$\therefore p \vee q$

44. State the justification for each line that is not a premise for the following arguments : 4+4=8

(a) *(i)* $Q \supset R$

(ii) $\sim S \supset (T \supset U)$

(iii) $S \vee (Q \vee T)$

(iv) $\sim S \; / \therefore R \vee U$

(v) $T \supset U$

(vi) $(Q \supset R) \cdot (T \supset U)$

(vii) $Q \vee T$

(viii) $R \vee U$

(b) *(i)* $W \supset X$

(ii) $(W \supset Y) \supset (Z \vee X)$

(iii) $(W \cdot X) \supset Y$

(iv) $\sim Z \; / \therefore X$

(v) $W \supset (W \cdot X)$

(vi) $W \supset Y$

(vii) $Z \vee X$

(viii) X

45. Construct formal proof of validity for the following arguments : 4+4=8

(a) $E \vee \sim F$
$F \vee (E \vee G)$
$\sim E$
$\therefore G$

(b) $T \supset U$
$N \vee \sim U$
$\sim N \cdot \sim W$
$\therefore \sim T$

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