

2021

B. A. Part II, Hons (Philosophy)

Paper IV: Western Logic

Paper code: IV-A

Full marks: 20

Time: 30 minutes

Answer all the questions. Choose the correct answer. Each question carries 1 mark.

1. On the basis of their quality, how many categorical propositions are there?
(A) Two ,
(B) Three
(C) Four
(D) Five

2. Aristotle accepted only two oppositions of proposition. They are -----
(A) Contrary and sub-contrary
(B) Contrary and contradictory
(C) Sub-contrary and sub-altern
(D) None of the above

3. $\sim(p.\sim q)$ is logically equivalent to
(A) $p \vee q$
(B) $p \supset q$
(C) $\sim p \vee \sim q$
(D) $\sim p.\sim q$

4. Which one of the following is a fundamental law of thought?
(A) Law of reasoning
(B) Law of compatibility
(C) Law of double negation
(D) Law of Excluded middle

5. If the proposition I is false, then what is the truth value of proposition A?
(A) True
(B) False
(C) Doubtful
(D) All the above

6. The truth value of ' $A \vee \sim A$ ' is

- (A) True
- (B) False
- (C) Undetermined
- (D) None of the above

7. The figure of syllogism is determined by the position of

- (A) Major term
- (B) Minor term
- (C) Middle term
- (D) None of the above

8. $(p \supset q) \equiv (\sim q \supset \sim p)$ — what is the name of this rule?

- (A) Law of double negation
- (B) Law of transposition
- (C) Law of material implication
- (D) Law of exportation

9. 'No circles are squares' — In this proposition, the distributed term is/are

- (A) subject only
- (B) only predicate
- (C) both subject and predicate
- (D) Neither subject nor predicate

10. Every man is not assiduous — Boolean interpretation of the above mentioned proposition is

- (A) $M\bar{A} = 0$
- (B) $MA = 0$
- (C) $MA \neq 0$
- (D) $M\bar{A} \neq 0$

11. The supporter of the 'plurality of causes' is

- (A) J. S. Mill
- (B) I. M. Copi
- (C) G Frege
- (D) None of the above

12. Which of the following is not a decision procedure?

- (A) Formal proof of validity
- (B) Truth Table
- (C) Truth Tree
- (D) Venn diagram

13. If in the same argument, all the premises are true but the conclusion is false, then the argument is _____

- (A) True
- (B) False

- (C) Valid
- (D) Invalid

14. Truth and falsity are attributes of

- (A) Word
- (B) Sentence
- (C) Individual proposition
- (D) None of the above

15. Which of the following is called universal affirmative?

- (A) A
- (B) E
- (C) I
- (D) O

16. The quantification theory is associated with the name of

- (A) I. M. Copi
- (B) Quine
- (C) Frege
- (D) Kant

17. $(\exists x)$ is called -----.

- (A) propositional function
- (B) existential quantifier
- (C) substitution instance
- (D) individual variable

18. 'Tautology' is

- (A) argument form
- (B) statement form
- (C) sentence form
- (D) a formula

19. On the Boolean interpretation which of the following propositions have existential import?

- (A) A and E propositions
- (B) I and O propositions
- (C) A and I propositions
- (D) E and O propositions

20. The symbol \equiv may be read as

- (A) 'either or'
- (B) 'if then'
- (C) 'if and only if'
- (D) 'Nothing but'

Paper code: III-B

Full Marks: 80

Time: 3.30 hours

The figures in the margin indicate full marks.

Section – I

Answer any four of the following 15x4=60

- 1 What is categorical proposition? What is existential import? Do you think every categorical proposition has existential import? Discuss. 2+3+10
2. What is material implication? What are the different forms of material implication? Explain with example the paradox of material implication. 3+4+8
3. State and explain Mill's Method of Difference with suitable symbolic and concrete example. Is the method of Difference a method of discovery? 10+5
4. Explain why FELAPTON, FESAPO and BRAMANTIP are said to be invalid in modern interpretation. Justify your answer with the help of Venn diagram. 15
5. Construct formal proof of validity of the following. 5+5+5
 - (a) $A \supset (B \vee C)$
 $C \supset (B \cdot D)$
 $\sim B / \text{Therefore } A \supset \sim D$
 - (b) $(x) [Bx \supset \sim Cx]$
 $(\exists x)(Cx \cdot Dx)$
 $(\exists x)(Dx \cdot \sim Bx)$
- c) If the first disjunct of a disjunction is true, the disjunction as a whole is true. Therefore if both the first and second disjuncts of the disjunction are true, then the disjunction as a whole is true (F, W, S).
6. What is analogical argument? Explain the different criteria for the appraisal of analogical argument. 5+10
7. What is Decision procedure? Is truth-table method a decision procedure? Determine the following statement forms as tautology or self-contradictory or contingent by using truth-table.

$$(a) (q \supset r) \supset [(pvq).(pvr)]$$

$$(b) [pv (q.r)] \equiv [(p.q)v(p.r)]$$

2+3+5+5

8. What do you mean by probability? Calculate the probability of the following :

(a) What is the probability of getting at least one head in three tosses of a coin?

(b) What is the probability of getting three aces in three successive draws from a deck of cards?

5+5+5

Section – II

9. Answer any *four* of the following : 5x4=20

(a) What is obversion? Write the rules of obversion with example. 2+3

(b) What is argument? Write the characteristic features of deductive argument. 2+3

(c) Explain the fallacy of undistributed middle with suitable example.

(d) Test the validity or invalidity of the following argument by truth-tree method

$$M \supset N$$

$$M \supset (N \supset O)$$

$$\text{Therefore } M \supset O$$

(e) Prove the invalidity by assignment of Truth-values.

$$(\exists x)(Ax . Bx)$$

$$(\exists x)(Cx . Bx)$$

$$\text{Therefore } (x) (Cx \supset \sim Ax)$$

(f) What do you understand by ‘Contradictory Class’ and ‘Complementary Class’? Explain with example.

(g) Distinguish between Rules of inference and Rules of replacement.

(h) Write a short note on Ad-hoc hypothesis.