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**MPYE-001**

**M. A. PHILOSOPHY**

**(MAPY)**

**Term-End Examination**

**June, 2021**

**MPYE-001 : LOGIC**

*Time : 3 Hours*

*Maximum Marks : 100*

**Note :** (i) Answer all the **five** questions.

(ii) All questions carry equal marks.

(iii) Answers to Question No. 1 and 2 should be in about **500** words each.

1. Examine the role played by distribution of terms in determining the quantity of categorical proposition. 20

*Or*

Construct truth tables for all forms of compound proposition.

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2. Write the rules of inference and the rules of replacement. For all rules write symbolic structures. 20

*Or*

Write all logical relations using quantifiers. Discuss the implications of universal and existential quantifiers.

3. Answer any **two** of the following in about **250** words each :

(a) Distinguish between square of opposition and figure of opposition with suitable examples. 10

(b) Distinguish between classical logic and symbolic logic. 10

(c) Construct formal proof of validity for the arguments given below : 10

(1) (i)  $(V \Rightarrow \neg W) \wedge (X \Rightarrow Y)$

(ii)  $(\neg W \Rightarrow Z) \wedge (Y \Rightarrow \neg A)$

(iii)  $(Z \Rightarrow \neg B) \wedge (\neg A \Rightarrow C)$

(iv)  $V \wedge X / \therefore \neg B \wedge C$

(2) (i)  $(M \vee N) \Rightarrow (O \wedge P)$

(ii)  $(O \vee Q) \Rightarrow \neg R \wedge S$

(iii)  $(R \vee T) \Rightarrow (M \vee N) / \therefore \neg R$

**P. T. O.**

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- (d) Construct formal proofs of validity for the arguments given below : 10
- (1) (i)  $(x)[Qx \Rightarrow Rx]$   
(ii)  $(\exists x)(Qx)$   
 $\therefore (\exists x)Rx$
- (2) (i)  $(x)[Dx \Rightarrow \neg Ex]$   
(ii)  $(x)(Fx \Rightarrow Ex)$   
 $\therefore (x)[Fx \Rightarrow \neg Dx]$
4. Answer any **four** of the following in about **150** words each :
- (a) Prove the special rules of the third figure. 5
- (b) Using symbols write the equivalent forms of conditional proposition. 5
- (c) Using the truth-value technique show that the following argument is invalid : 5
- (i)  $J \Rightarrow (K \Rightarrow L)$   
(ii)  $K \Rightarrow (\neg L \Rightarrow M)$   
(iii)  $(L \vee M) \Rightarrow N / \therefore J \Rightarrow \neg N$
- (d) What are the advantages of proving in validity ? 5
- (e) Construct and prove a non-syllogistic argument. 5
- (f) Distinguish between two-valued logic and multi-value logic. 5

P. T. O.

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5. Write short notes on any **five** of the following in about **100** words each :
- (a) Obversion. 4
- (b) Difference between Weakened and Strengthened moods. 4
- (c) Truth and Validity. 4
- (d) Argumentum and Ignorantiam. 4
- (e) Indirect Proof. 4
- (f) Difference between Contrary and Contradiction. 4
- (g) Existential Generalization. 4
- (h) Fuzzy Machines. 4

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