This question paper contains **4** printed pages]

Roll No. | | | | | | | | | | | |

S. No. of Question Paper : **7835A**

Unique Paper Code : **62101135** **GC**

Name of the Paper : **Introduction to Logic**

Name of the Course : **B.A. (Prog.) Philosophy (In lieu of MIL)**

Semester : **I**

Duration : **3 Hours** Maximum Marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *all* questions.

1. Answer any *two* of the following : 2×5=10

   (*i*) Define an argument. What do you understand by a premise and a conclusion ? Explain with examples.

   (*ii*) Differentiate between a deductive and an inductive argument with examples.

   (*iii*) Can an invalid argument have true conclusion ? Explain with examples.

2. What do you understand by a categorical proposition ? Explain with examples how categorical propositions are distinguished from each other as per quality and quantity. 5

Or

Explain and illustrate Traditional Square of Opposition of Propositions.

P.T.O.

3. Do the conversion, obversion and contraposition of any *two* of the following statements : (1+1+2)×2=8

(*i*) All surgeons are doctors

(*ii*) No children are voters

(*iii*) Some students are not leaders.

4. What are the opposite statements of the following ? And if the following statement is true, what can you infer about the truth-value of its opposites ? 6

'Some athletes are not professionals'.

5. Translate any *four* of the following into standard-form categorical propositions and also name those propositions : 4×1½=6

(*i*) All that glitters are not gold.

(*ii*) A bat is a mammal.

(*iii*) Only members are allowed to attend the meeting.

(*iv*) A few cars are expensive.

(*v*) Nothing is perfect in this world.

(*vi*) Children are mostly naughty.

6. Write any *two* of the following syllogisms into standard-form and name their mood and figure : 2×3=6

(*i*) All proteins are organic compounds; hence all enzymes are proteins, as all enzymes are organic compounds.

(*ii*) Some scientists are not hardworking people, as some scientists are not professors and all professors are hardworking people.

(*iii*) Some engineers are not happy people. No happy people are underpaid. It follows that some engineers are underpaid.

7. Test the validity/invalidity of any *two* of the following by using syllogistic rules and fallacies : 2×4=8

(*i*) AEE-1

(*ii*) AII-2

(*iii*) EAE-3.

8. Symbolize any *five* of the following statements : 5

(*i*) India will not win the series if Kohli does not play well. (I, K)

(*ii*) Unless I am mistaken, Karan is both a producer and a director. (M, P, D)

(*iii*) Not both Preeti and Jyoti will attend the party. (P, J)

(*iv*) There will be peace in the world if and only if terrorism is eradicated. (P, T)

(*v*) Hillary will win the election only if she defeats Donald. (H, D)

(*vi*) Lakshmi is neither hardworking nor intelligent. (H, I)

(*vii*) It is not the case that if you stop studying then you will be able to keep your grades. (S, K)

9. If P, Q, R are true and X, Y, Z are false, determine the truth-value of any *two* of the following : 2×3=6

(*i*) $(\sim P \cdot \sim X) \supset (\sim Q \vee Z)$

(*ii*) $(P \vee R) \cdot (\sim Y \supset X)$

(*iii*) $(Y \supset \sim Q) \vee (Z \cdot \sim R)$.

10. Determine the logical status (tautology etc.) of any *one* of the following statement forms : 5

(*i*) $(p \supset q) \vee (\sim q \supset r)$

(*ii*) $(\sim p \cdot \sim r) \supset (q \vee r)$.

11. Use truth table method to prove the validity/invalidity of any *one* of the following argument forms : 5

(*i*) $p \supset q$

$\sim q \supset \sim r$

$/\therefore \quad p \supset \sim r$

(*ii*) $(p \cdot r) \supset (p \vee q)$

$\sim(p \vee q)$

$/\therefore \quad \sim(p \cdot r)$

12. Using shorter truth table method determine the validity/invalidity of any *one* of the following : 5

(*i*) $p \supset (q \supset r)$

$/\therefore \quad (p \cdot q) \supset r$

(*ii*) $(p \supset q) \supset r$

$\sim r$

$/\therefore \quad \sim p \vee q$