Max Marks 60
Date: 9-3-2022   Duration 90 Minutes

Instructions: Do not use any symbol other than the specified truth-functional connectives; do not use binary language. No marks, if the syllogism is not standard-form.

1. Taking the notions of quantity, quality and distribution of terms, discuss the nature of four categorical propositions with examples.   (10)

2. Discuss the characteristic features of traditional and modern symbolic logic and how is modern symbolic logic an advancement over the traditional logic.   (10)

3. Symbolize and determine whether it is a tautology, contradictory or contingent statement using truth table: (8)

   I'll get a job if I run out of money, and I'll run out of money iff I don't get a job, but I won't get a job. (M,J)

4. Use truth-table method to determine whether the following is a logical equivalence: (8)

   $$(\sim p \bullet \sim q) \equiv [(\sim p \bullet \sim q) \bullet r] \text{ v } [(\sim p \bullet \sim q) \bullet \sim r]$$

5. Symbolize the argument and use truth-table to determine its validity or invalidity.   (8)

   Had Roman citizenship guaranteed civil liberties, then Roman citizens would have enjoyed religious freedom. Had Roman citizens enjoyed religious freedom, there would have been no persecution of the early Christians. The early Christians were persecuted. Hence, Roman citizenship could not have guaranteed civil liberties. (G, F, P)

6. Rewrite it into standard-form categorical syllogism. Test its validity or invalidity, stating its mood and figure, by the method of Venn diagram. Specify fallacy(ies), if the syllogism is invalid.   (8)

   None of the products of Nature are due to chance. That which is due to chance does not reappear constantly, but all products of Nature reappear constantly.

7. Rewrite it into standard-form categorical syllogism. Test its validity or invalidity, stating its mood and figure, by syllogistic rules. Specify fallacy(ies), if the syllogism is invalid.   (8)

   Some racists are not people suited to be immigration officials, given that some humanitarians are not people suited to be immigrations officials, and no humanitarians are racists.

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