Course Code 2.6 : 0592 - Philosophy-II Paper-VI

P. Pages : 3

Time : Three Hours

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Max. Marks : 80

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Notes : 1. Attempt **eight** questions in all including question No. **1** which is compulsory.
2. All questions carry equal marks.
3. Indicate appropriate question number while answering.

1. Choose the correct alternative for the given statement.

i) $\sim(p \vee \sim p)$ is a .... statement form.
   a) Tautology
   b) Contradiction
   c) Contingency
   d) None of these

ii) A contradiction is a truth functional statement form which is........... under all truth possibilities of its components.
   a) True
   b) False
   c) Both 'a' and 'b'
   d) None of these

iii) .... is based on reduction ad absurdum principle.
   a) Truth tree
   b) Truth table
   c) Shorter truth table
   d) None of these

iv) Hx is a ....
   a) Statement
   b) Proposition
   c) Propositional function
   d) None of these

v) What is the symbol of Negation ?
   a) $\bullet$
   b) $\vee$
   c) $\supset$
   d) $\sim$

vi) What are the examples of the rule of replacement ?
   a) Transposition
   b) Exportation
   c) Both 'a' and 'b'
   d) None of these

vii) 'and' is used for what?
   a) Negation
   b) Conjunction
   c) Disjunction
   d) None of these

viii) If A and B are true statement and x and y are false statements, the statement $\sim(\sim A \vee X)$ is ....
   a) True
   b) False
   c) Doubtful
   d) None of these

ix) Rule of disjunctive syllogism is based on nature of .... statement.
   a) Compound
   b) Simple
   c) Disjunctive
   d) None of these

x) $(\exists x)(Hx \cdot Mx)$ is a .... Proposition.

    a) A   b) E

    c) I   d) O

2. Use truth tables to characterize the following statement forms as tautologous, contradictory or contingent **any two.**

i) $p \supset [\sim p \supset (q \vee \sim q)]$

ii) $p \equiv [p \vee (p \cdot q)]$

iii) $p \supset (q \vee \sim r)$

3. Prove the invalidity of the following by the method of shorter truth table **any two.**

i) $S \supset (T \supset U)$
$V \supset (W \supset X)$
$T \supset (V \cdot W)$
$\sim (T \cdot X)$
$\therefore S \equiv U$

ii) $F \supset R$
$S \supset R$
$\therefore F \supset S$

iii) $D \equiv (E \vee F)$
$E \equiv (F \vee D)$
$F \equiv (D \vee E)$
$\sim D$
$\therefore E \vee F$

4. Construct a formal proof of validity **any two.**

i) $A \supset \sim B$
$\sim (C \cdot \sim A)$
$\therefore C \supset \sim B$

ii) $R \vee (S \cdot \sim T)$
$(R \vee S) \supset (U \vee \sim T)$
$\therefore T \supset U$

iii) $J \vee (\sim J \cdot K)$
$J \supset L$
$\therefore (L \cdot J) \equiv J$

5. Prove the invalidity **any two.**

    i) $(\exists x)\,(Ax \cdot Bx)$

                $(\exists x)\,(Cx \cdot Bx)$

                $\therefore (x)\,(Cx \supset \sim Ax)$

    ii) $(x)\,(Ax \supset \sim Bx)$

                $(x)\,(Bx \supset Cx)$

                $\therefore (x)\,(Cx \supset \sim Ax)$

    iii) $(\exists x)\,(Mx \cdot Nx)$

                $(\exists x)\,(Nx \cdot Ox)$

                $\therefore (\exists x)\,(Ox \cdot Mx)$

6. Construct a formal proof of validity **any two.**

    i) $(x)\,(Dx \supset \sim Ex)$

                $(\exists x)\,(Fx \cdot Dx)$

                $\therefore (\exists x)\,(Fx \cdot \sim Ex)$

    ii) $(x)\,(Cx \supset Vx)$

                $(\exists x)\,(Hx \cdot Cx)$

                $\therefore (\exists x)\,(Hx \cdot Vx)$

    iii) $(\exists x)\,(Px \cdot \sim Qx)$

                $(x)\,(Px \supset Rx)$

                $\therefore (\exists x)\,(Rx \cdot \sim Qx)$

7. Explain the rules of quantification.

8. What is propositional function ? Explain the method of instantiation and quantification.

9. What is decision procedure ? What are the conditions of an effective decision procedure.

10. Explain the different kinds of definition.

11. Explain the different kinds of truth functional statement form.

12. Discuss the three laws of thoughts.

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