**TDC (CBCS) Odd Semester Exam., 2019**

# PHILOSOPHY

**( 1st Semester )**

Course No. : PHPGE/PHPDSC-101T

**( Logic )**

*Full Marks* : 70
*Pass Marks* : 28

*Time* : 3 hours

*The figures in the margin indicate full marks for the questions*

## UNIT—I

**1.** Answer any *four* questions : 1×4=4

*(a)* Is logic a science or an art or both?

*(b)* What are the different types of truth logic deals with?

*(c)* Write one use of studying logic.

*(d)* How many parts does an argument have?

*(e)* What are the two different types of arguments?

2. Answer any *one* question : 2

(a) When is a deductive argument valid?

(b) What is a sound argument?

3. (a) Determine the scope of logic and indicate the uses of the study of logic. 4+4=8

*Or*

(b) Explain argument and argument form with example. Distinguish between argument and argument form. 5+3=8

UNIT—II

4. Answer any *four* questions : 1×4=4

(a) How many parts are there in a proposition?

(b) What are the different kinds of proposition according to relation?

(c) "Any student can do this." Reduce this sentence into proper logical form.

(d) Illustrate Universal Affirmative proposition.

(e) What kind of opposition exists between *A* and *I* proposition?





5. Answer any *one* question : 2

(a) Name the different kinds of opposition of propositions in traditional square of opposition.

(b) What is an existential general proposition?

6. (a) What is compound proposition? What are its different forms? Explain each of them with examples. 1+2+5=8

*Or*

(b) What do you mean by 'opposition of propositions'? Explain Aristotelian square of opposition with a diagram. 2+6=8

UNIT—III

7. Answer any *four* questions : 1×4=4

(a) State one rule of obversion.

(b) What is the position of the middle term in the third figure?

(c) What is the obverse of 'some men are not wise'?

(d) How many valid moods are there in all four figures?

(e) Name one valid mood of Third Figure.

**8.** Answer any *one* question : 2

*(a)* State two rules of conversion.

*(b)* Give the converse of the following :

*(i)* The virtues alone are happy.

*(ii)* All Asians are not Indian.

**9.** *(a)* What is contraposition? State the rules of contraposition. Contrapose the statement, "Some clergymen are not abstainers". 2+4+2=8

*Or*

*(b)* *(i)* What is figure? How many figures are there? 1+1=2

*(ii)* Test the validity or invalidity of the following syllogistic arguments by applying Cope's six rules and name the fallacies : 3×2=6

(1) God creates man, man creates sin, hence God creates sin.

(2) He must be coward, for he is dishonest and all cowards are dishonest.





UNIT—IV

**10.** Answer any *four* questions : 1×4=4

*(a)* What is variable?

*(b)* What is a symbol?

*(c)* Write one point of distinction between classical logic and symbolic logic.

*(d)* What is the symbol of biconditional?

*(e)* If $p$ is true, $q$ is false, then what is the truth value of $p \supset q$?

**11.** Answer any *one* question : 2

*(a)* Symbolize the following sentences :

*(i)* The weather is cloudy and Mohan does not go to college.

*(ii)* It is not true that either Leena will go or she will stay at home.

*(b)* What is tautology?

**12.** *(a)* Use truth table to characterize the following statement forms as tautologous, contradictory or contingent : 4+4=8

*(i)* $[q \equiv (p \supset q)] \supset p$

*(ii)* $(p \supset q) \supset [\sim p \supset (q \vee \sim q)]$

*Or*

*(b)* Use shorter truth table method to prove the invalidity of the following : 4+4=8

*(i)* $A \supset B$
$B \cdot C$
$C \vee D$
$\therefore A \vee D$

*(ii)* $A \cdot \sim B$
$B \equiv C$
$C \supset D$
$\therefore \sim D$

UNIT—V

**13.** State the rule of inference by which the conclusion follows from its premise or premises (any *four*) : 1×4=4

*(a)* $(D \vee E) \cdot (F \vee G)$
$\therefore D \vee E$

*(b)* $H \supset I$
$\therefore (H \supset I) \vee (H \supset \sim I)$

*(c)* $(A \supset B) \supset (C \vee D)$
$A \supset B$
$\therefore C \vee D$

*(d)* $(X \vee Y) \supset \sim (Z \cdot \sim A)$
$\sim\sim (Z \cdot \sim A)$
$\therefore \sim (X \vee Y)$

*(e)* $\sim (B \cdot C) \supset (D \vee E)$
$\sim (B \cdot C)$
$\therefore D \vee E$





**14.** Answer any *one* question : 2

*(a)* State the rule of disjunctive syllogism (DS) and absorption (Abs).

*(b)* State the justification for each line that is not premise for the following argument :

$A$
$B / \therefore (A \vee C) \cdot B$
$A \vee C$
$(A \vee C) \cdot B$

**15.** *(a)* *(i)* Construct formal proof of validity for the following argument : 5

$A \supset B$
$A \vee (C \cdot D)$
$\sim B \cdot \sim E$
$\therefore C$

*(ii)* State the justification for each line that is not a premise for the following arguments : 3

1. $(E \vee F) \cdot (G \vee H)$
2. $(E \supset G) \cdot (F \supset H)$
3. $\sim G / \therefore H$
4. $E \vee F$
5. $G \vee H$
6. $H$

*Or*

*(b)* Construct formal proof of validity for the following arguments : 4+4=8

*(i)* $Q \supset R$
$\sim S \supset (T \supset U)$
$S \vee (Q \vee T)$
$\sim S / \therefore R \vee U$

*(ii)* 1. $W \supset X$

2. $(W \cdot X) \supset Y$

3. $(W \cdot Y) \supset Z / \therefore W \supset Z$

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