



2022/TDC/ODD/SEM/PHIGE-501T/064

TDC (CBCS) Odd Semester Exam., 2022

PHILOSOPHY

(5th Semester)

Course No. : PHIGE-501T

(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 of the following questions :

1×4=4

(a) Give an example of a statement-form.

(b) “An argument is either true or false.” Is it true?

(c) Give any one utility of the study of Logic.



(2)

- (d) Give an example of a valid argument.
(e) "The truth or falsity of an argument is not totally independent of the validity or invalidity of the argument." Is it true?

2. Answer any *one* of the following questions : 2

- (a) What is Logic?
(b) What is statement-form?

3. What is argument? What is argument-form? Distinguish between argument and argument-form. 2+2+4=8

Or

Explain the relationship between the validity and invalidity of an argument and truth and falsehood of its premises and conclusion. 8

UNIT—II

4. Answer any *four* of the following questions : 1×4=4

- (a) Name the opposition that exists between E and O propositions.
(b) Give an example of class-membership proposition.

(3)

(c) Why is subject-less proposition a proposition?

(d) Give symbolic representation of the following relational proposition :

"Mother loves her children."

(e) Name the opposition in which two propositions cannot be true together and also two propositions cannot be false together.

5. Answer any *one* of the following questions : 2

(a) "Sub-contrary relation is to be given up according to modern logicians." Why?

(b) Define with example 'compound proposition'.

6. Explain with examples, different kinds of compound proposition. 8

Or

Define with examples, different types of general proposition. 8



(4)

UNIT—III

7. Answer any *four* of the following questions : $1 \times 4 = 4$
- (a) Mention two types of deductive inference.
 - (b) Represent 'I' proposition by Venn diagram.
 - (c) Obvert the following :
"Some fruits are juicy items."
 - (d) When we commit existential fallacy?
 - (e) How many valid moods are there?
8. Answer any *one* of the following questions : 2
- (a) What is contrapositive of the following statement?
"No vegetables are things lacking in multiple vitamins."
 - (b) What is syllogism?
9. State Copi's Six Rules of syllogism. When we commit the fallacy of drawing affirmative conclusion from a negative premise? $6 + 2 = 8$

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(Continued)

(5)

Or

Test the following syllogistic argument by Venn's diagram technique : $4 + 4 = 8$

- (a) Some scientists are philosophers, for all scientists are mathematicians and some philosophers are mathematicians.
- (b) No philosophers are movie lovers because no musicians are philosophers and all musicians are movie lovers.

UNIT—IV

10. Answer any *four* of the following questions : $1 \times 4 = 4$
- (a) When an equivalent function becomes true?
 - (b) Name the symbol of implication.
 - (c) If p is false and q is false, what is the truth value of ' $p \supset q$ '?
 - (d) If A is true and B is false, then determine whether the following statement is true or false :
 $(A \cdot B) \supset (B \supset A)$
 - (e) Illustrate 'Disjunctive statement-form'.

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(Turn Over)



(6)

11. Answer any one of the following questions : 2

(a) Symbolize the following :
"If it is not the case that Bimal teases,
then Gita will not be angry."

(b) What is Truth-Table method?

12. Use Truth-Tables method to determine
the validity or invalidity of the following
arguments : 4+4=8

(a) $(A \supset \sim B) \supset (B \vee \sim A)$
 $\sim (B \vee \sim A)$
 $\therefore \sim (A \supset \sim B)$

(b) If Lucky is an artist, then either Priya
is a philosopher or Rosy is a doctor.
Rosy is not a doctor. Therefore Lucky
is not an artist. (L, P, R)

Or

Prove invalidity of the following by assigning
Truth-values : 4+4=8

(a) $Z \supset Y$
 $X \supset W$
 $Z \vee W$
 $\therefore Y \vee X$

(b) $Z \equiv (Y \vee X)$
 $Y \equiv (X \vee Z)$
 $X \equiv (Z \vee Y)$
 $\sim Z$
 $\therefore Y \vee X$

(7)

UNIT—V

13. Answer any four of the following questions : 1×4=4

(a) "A formal proof of validity cannot
function in testing validity or invalidity
of arguments." Is it true?

(b) Fill in the blank :
'Formal proof' relies on some valid
argument _____.

(c) How many kinds of rules of inference
are there?

(d) Fill in the blank :
Formal proof of validity is also known
as Natural _____.

(e) "The statement constituting a formal
proof of validity is not logically inter-
connected." Is it true?

14. Answer any one of the following questions : 2

(a) State the rules of (i) absorption and
(ii) simplification.

(b) What is the meaning of Modus Ponens
(MP)?

15. Construct the following formal proofs of
validity : 4+4=8

(a) 1. $D \supset C$
2. $(D \cdot C) \supset B \quad \therefore D \supset B$



- (b) 1. $(V \vee U) \supset (T \cdot S)$
2. $(T \vee S) \supset R$
3. $V \quad \quad \quad \therefore R$

Or

State the justification for each line that is not a premise for the following arguments : (4+4=8)

- (a) 1. $Z \supset Y$
2. $(Z \cdot Y) \supset (X \vee W)$
3. $(X \vee W) \supset \sim V$
4. $(Z \supset \sim V) \supset U \quad \therefore U$
5. $Z \supset (Z \cdot Y)$
6. $Z \supset (X \vee W)$
7. $Z \supset \sim V$
8. U

- (b) 1. $L \supset \sim N$
2. L
3. $Y \supset \sim M$
4. Y
5. $(\sim N \cdot \sim M) \supset U$
6. $(Y \cdot U) \supset T \quad \therefore T$
7. $\sim N$
8. $\sim M$
9. $\sim N \cdot \sim M$
10. U
11. $Y \cdot U$
12. T
