K20U 0278

Reg. No. : .....

Name : .....

II Semester B.A. Degree (CBCSS – Supplementary/Improvement) Examination, April 2020
(2014-2018 Admissions)
COMPLEMENTARY COURSE IN PHILOSOPHY
2C02 PHI : Symbolic Logic and Foundations of Computer Application

Time : 3 Hours Max. Marks : 40

PART – A

Answer **all** questions. **Each** answer carries **1** mark.
Fill in the blanks with the most appropriate answer chosen from the given options.

1. Logicians are concerned mainly with the _____ function of language.
   a) ceremonial b) informative c) directive d) emotive

2. "If any statement is true, then it is true." This is the law of _____.
   a) contradiction b) non-contradiction
   c) identity d) excluded middle

3. _____ is/are applicable to conjunction.
   i) Wedge is the symbol.
   ii) It is a truth functional compound statement.
   iii) The compound statement is true only if its components are true.
   iv) The final column in the truth table contains all T.
   a) i and ii b) ii and iv c) ii and iii d) only iv

4. In the logical form of an argument, the number of premises is one or more than one, but the conclusion is always one. Similarly, in any basic logic gate the _____ is always one.
   a) output b) input
   c) both (a) and (b) d) neither (a) nor (b) (4×1=4)

P.T.O.

PART – B

Write short notes on any seven of the following questions. Each answer should not exceed 50 words. Each answer carries 2 marks.

5. Symbols for negation and conjunction.

6. Truth table for material implication.

7. The principle of excluded middle.

8. Distinction between simple and compound statements.

9. Truth table for $p \vee \sim p$.

10. The symbolic formulae of the two expressions of De Morgan's theorems.

11. The symbolic form and truth table for Modus Ponens.

12. Symbolic representation of identity function in Boolean algebra.

13. The T/F status of output X in AND gate when inputs A and B are true.

14. The inverter logic gate. (7×2=14)

PART – C

Answer any four questions. **Each** answer should **not** exceed **100** words. **Each** answer carries **3** marks.

15. Analyze the problem of using emotive language in logic.

16. When an argument form is considered valid ? Test the validity of the following by means of truth table :
$p \supset q, q, \therefore p$

17. Bring out the classification of statement forms into tautology, contradiction and contingent based on the truth and falsity of their substitution instances.

18. Write a note on the relationship between binary digital values and logical values.

19. Identify the logic gate represented in the following table and draw its circuit diagram :

Inputs		Output
A	B	A + B
0	0	0
0	1	1
1	0	1
1	1	0

20. Convert the binary 110.001 into real number. (4×3=12)

PART – D

Answer any two questions. **Each** answer should **not** exceed **250** words. **Each** answer carries **5** marks.

21. Bring out the various types of symbols used in modern logic with a note on their advantages.

22. Bring out the characteristics of material equivalence as a truth -functional connective and demonstrate its truth table.

23. Analyze the structure of disjunctive syllogism and present its truth table.

24. A system used two switches A and B; a combination of the switches determines whether an alarm X sounds. If switch A and switch B are in the ON position then a signal to sound an alarm, X is produced.

Present the logic circuit and truth table to demonstrate the working of the system. (2×5=10)