23108101

QP CODE: 23108101

Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) SPECIAL SUPPLEMENTARY EXAMINATIONS, APRIL 2023

Fifth Semester

CORE COURSE - PH5CRT07 - DIGITAL ELECTRONICS AND PROGRAMMING

Common for B.Sc Physics Model I, B.Sc Physics Model II Applied Electronics, B.Sc Physics Model II Computer Applications & B.Sc Physics Model III Electronic Equipment Maintenance

2020 Admission Only

FC99CC05

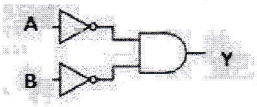
Time: 3 Hours Max. Marks : 60

Part A

*Answer any **ten** questions.*

*Each question carries **1** mark.*

1. State the basic OR relations in Boolean algebra using 'A' as one variable.
2. Find the dual of the function $(\bar{x}y\bar{z} + \bar{x}\bar{y}z = 1)$
3. Draw the logic diagram for the Boolean equation $\overline{(x+y)}(\bar{x}+\bar{y})$
4. Write the truth Table of the following logic circuit.



5. How many and gates are required for a 1 to 4 multiplexer?
6. What do you mean by encoder?
7. What is D flip flop truth table?
8. What is quantization in analog to digital conversion?
9. What is a pointer in C++?
10. What are constants?
11. What are assignment operators in C++?
12. Give an example for if.... else statement.

(10×1=10)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. Discuss the canonical forms of Boolean function.

14. Obtain a simplified expression for the output Y in terms of inputs A, B, C for the following Boolean equation using K-Map,

$Y = \bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}C + A\bar{B}\bar{C} + A\bar{B}C.$

15. What is full adder? What is the use of Adder?

16. Draw the logic circuit and truth table for a clocked SR flip-flop. Explain its operation

17. What is a 4 bit binary ripple counter? Explain

18. What is the basic structure of a C++ program?

19. Describe int, long and double datatypes.

20. Distinguish between a function and an inline function.

21. Contrast between member functions and friend functions in C++.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **10** marks.*

22. Sketch Exclussive-OR and Exclussive – NOR gates with two inverters and two AND gates. Explain the working of these gates using logic symbol and truth table. Obtain the Boolean expression in each. State few applications these gates.

23. With the neat sketches, explain SISO and SIPO registers.

24. Explain the principle of D/A converters. Explain D/A converter using R-2R ladder network. What are the applications of DAC?

25. Write a C++ program to generate Fibonacci series containg 25 numbers. Store the numbers in an array.

(2×10=20)