TB205425V

Reg. No :.....

Name :.....

B. Sc. DEGREE (C.B.C.S.) EXAMINATION, NOVEMBER 2022

(2020 ADMISSIONS REGULAR AND 2019, 2018 ADMISSIONS SUPPLEMENTARY

SEMESTER V - CORE COURSE (PHYSICS)

PH5B08B18 - DIGITAL ELECTRONICS AND PROGRAMMING

Time : 3 Hours **Maximum Marks : 60**

Part A

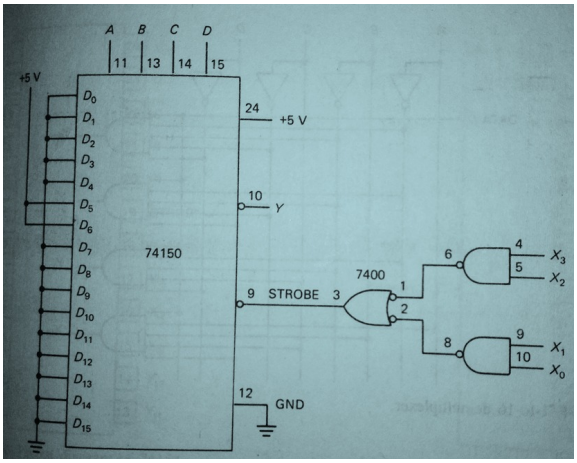
I. Answer any Ten questions. Each question carries 1 marks **(10x1=10)**

1. Give the logic symbol and truth table of NAND gate.
2. State associative law with logic circuit.
3. Define Karnaugh map. Give an example.
4. Enlist the advantages of parallel adder circuit.
5. Differentiate decoders and demultiplexers.
6. Briefly explain the term 'triggering' in digital circuits.
7. Find the o/p voltage from a 4 bit ladder that has a digital input of 1101 (assume 0 =0V & 1= 10V).
8. Mention the advantages of expressing a programme as a text file in a programming language like C++, instead of writing processor instructions.
9. Define namespace in C++.
10. What is a variable in C++ language?
11. Specify the rules for writing identifiers in C++ language.
12. Specify the identifier that receives the input data from the user in a C++ programme.

Part B

II. Answer any Six questions. Each question carries 5 marks **(6x5=30)**

13. A digital circuit has high outputs for the following input conditions, 1001, 0101, 1011 and 1111. Deduce its sum of product equation and corresponding logic circuit. Express the SOP equation in canonical form and convert it to POS form also.
14. Explain the working of a full subtractor circuit. Give its truth table, logic circuit and Boolean expressions for difference and Carry.
15. Identify the circuit given. What does Y equal for the i/p conditions
    (a) ABCD =0111, x0x1x2x3 =0011 (b) ABCD =1001, X0X1X2X3 = 0110 (c) ABCD =1111, X0X1X2X3 = 0001 ?



16. Explain the working of a negative edge triggered SR flip flops.Draw its output wave froms.
17. Discuss the working of a serial in parallel out register.
18. Write a C++ programme that prompts the user to type in a floating point number representing the radius of a circle, calculates and displays the circle's area.
19. Write a C++ programme that receives a number from the user, checks whether it is less than 200 and displays the result.
20. Write a programme that prints out the cubes of the numbers from 1 to 10.
21. Demonstrate 'while' loop using fibonacci series.

Part C

III. Answer any Two questions. Each question carries 10 marks **(2x10=20)**

22. Discuss the construction of 2 variables, 3 variables and 4 variables karnaugh map with examples. Illustrate how pair, octet and rolling eliminate the variables.
23. Mention the types of Converters and discuss how a resistive ladder network converts digital signal to corresponding analog signal.
24. Discuss the initialization of arrays and accessing of array elements using examples.
25. Explain the function components in C++.