BSc DEGREE (CBCS) EXAMINATION, OCTOBER 2019

Fifth Semester

Core Course - PH5CRT07 - DIGITAL ELECTRONICS AND PROGRAMMING

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

2017 Admission Onwards

29E8F767

Maximum Marks: 60   Time: 3 Hours

Part A

*Answer any **ten** questions.*

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

1. Draw the logic circuit of (A+B)+C = A+(B+C) for both LHS and RHS.

2. State the duality theorem.

3. Write the other canonical form of $F(x, y, z) = \sum(1, 2, 5)$

4. Give the number of cells in an n-variable K-Map.

5. What is a full adder circuit?

6. What is mean by edge triggered flip flops?

7. What is meant by T flip flop?

8. What are the application of counters?

9. How will you define a variable in C++?

10. Give an example of single line comment.

11. What '\t' means in C++?

12. How will you define an inline function in C++?

(10×1=10)

Part B

*Answer any **six** questions.*

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

13. Draw logic diagram to implement the Boolean expression $F = (A \oplus B) + (A \odot B)$. Also obtain the simplified function and its logic circuit.

14. Verify the following boolean identity by perfect induction method $XYZ + \overline{X}YZ + XY\overline{Z} = YZ + XY\overline{Z}$.

15. What is a Multiplexer? Explain 8 to 1 Multiplexer.

16. Explain 3 to 8 decoder circuit diagram.

17. With the neat sketches, explain SISO registers.

18. Distinguish between the terms declaration, definition and initialization as applied to variables in C++.

19. Contrast between relational and logical operators in C++.

20. Illustrate an exit controlled loop in C++.

21. Write a C++ code segment to display a matrix.

$(6\times5=30)$

Part C

*Answer any **two** questions.*

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

22. Distinguish between Basic and Universal gates with their standard symbols and truth tables. Why are they called so? Prove that NAND and NOR are Universal gates.

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

24. Explain the principle of A/D converters. Explain counter type A/D converter. What are the application of ADC?

25. What is a class in C++? How do you create an object of a class? Describe methods of defining member functions and accessing class members.

$(2\times10=20)$