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Sixth Semester B.Sc. Degree Examination, April 2022

First Degree Programme Under CBCSS

Physics

Core Course XII

PY 1644 – DIGITAL ELECTRONICS AND COMPUTER SCIENCE

(2018 & 2019 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

Answer **all** questions in **one** or **two** sentences. **Each** question carries **1** mark.

1. Draw SR latch using NOR gates.
2. What is the meaning of #*include*?
3. What is the purpose '*private*'?
4. What is meant by the domain of a Boolean expression?
5. Define a byte.
6. Explain the function of ALU.
7. Which are the basic data types in C++?
8. What is meant by a non-volatile memory cell?

P.T.O.

9. What is system bus in microprocessors?

10. What is the difference between machine language and assembly language?

(10 × 1 = 10 Marks)

SECTION – B

Answer **any eight** questions, not exceeding a paragraph. **Each** question carries **2** marks.

11. Create NOR gate using NAND gates.

12. Give logic gate representation of De Morgan's theorems.

13. Give the truth table and timing diagram of a two input AND gate.

14. Differentiate between EPROM and EEPROM.

15. Explain the features of ASCII code

16. Convert the decimal number 212 to hexadecimal and binary

17. Explain the syntax for comments in C++ programmes?

18. Explain assignment operators with an example.

19. Compare the functions max(*x*,*y*) and min(*x*,*y*).

20. What is the significance of while loop? Give its syntax.

21. What are operations on pointers?

22. What is the meaning of type casting in C++?

23. What is cache memory?

24. What are the limitations of 8085 microprocessor to qualify as an MPU?

25. What are the basic differences between microprocessor and microcontroller?

26. Convert $1C.E5_{hex}$ to decimal.

(8 × 2 = 16 Marks)

SECTION – C

Answer **any six** questions. **Each** question carries **4** marks.

27. Draw the input and output waveform for a 2 input XNOR gate corresponding to its truth table.

28. If $f(P, Q, R, S) = \Sigma(0, 2, 5, 7, 8, 10, 13, 15)$, find the final Boolean expression using *K*-map.

29. Write a C++ program to display the squares of the numbers from 0 to 14.

30. Expand $Y = \overline{A \oplus B}$. What does this represent?

31. Give the truth table and waveform of positive edge triggered JK flip flop.

32. Write a C++ programme to find out the solution of a quadratic equation.

33. Explain the need operating systems by considering some major facilities provided by them.

34. What is an escape sequence? Give example. When are they used?

35. Distinguish between if and if- else statements.

36. Explain the role of structure in C++ with an example.

37. What are flash memories? Explain their advantages.

38. Draw the block diagram of 8085 hardware model and explain it.

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. **Each** question carries **15** marks.

39. Which are the universal gates? Why do they be called so? Give their truth table, symbol and Boolean logic. Obtain the basic gates using them.

40. Discuss about the basic C++ variable types.

41. With necessary details explain the working of a half adder and a full adder.

42. Discuss about the various input and output units of a computer.

43. What are arrays? Write a programme to find out the largest number among the numbers entered by the user.

44. Draw the pinout diagram of 8085 microprocessor and give the functions of them.

(2 × 15 = 30 Marks)
