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R – 1251

Reg. No. :

Name :

Sixth Semester B.Sc. Degree Examination, April 2023

First Degree Programme under CBCSS

Physics

Core Course

PY 1644 : COMPUTER SCIENCE

(2013 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

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

1. State the duality theorem.
2. What 'a' means in C?
3. Explain whether 1011_2 is a BCD.
4. Find out the 2's complement form (a) 11110_2 (b) 101010_2
5. State the basic AND relations in Boolean algebra using 'A' as one variable.
6. What are the applications of flip-flops?
7. Name the logical operators in C
8. What is a half subtractor?

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9. Give the logical symbol of JK Flip-Flop.

10. Name two input devices.

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions not to exceed a paragraph. Each question carries **2** marks.

11. What is a full adder circuit?

12. What is meant by T flip flop?

13. What is an exit controlled loop?

14. State and explain Simpson's rule.

15. Write the truth table and symbol of three variable OR gate.

16. State and explain De-Morgan's theorem.

17. What are relational operators in C?

18. Find the complement of the function $F = (AB + CD)$, then show that $FF' = 0$.

19. How do you declare an array?

20. Why do we need an operating system?

21. How do you set graphic mode in C programming?

22. Name any three functions that can be used in graphics mode in C.

(8 × 2 = 16 Marks)

SECTION – C

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

23. With the help of a suitable code segment illustrate the usage of if...else statement.

24. What is the advantage of BCD number system over binary system?

25. Compare Windows and Linux Oss.

26. What is an algorithm?
27. Find a positive root of the equation $Xe^x = 1$ using bisection method.
28. Find the real root of $e^x - 4x = 0$ correct to three decimal places using Newton – Raphson method.
29. What are the merits of Lagrange's interpolation formula?
30. Give a short note on linear regression.
31. Give a note on secondary storage memories.

(6 × 4 = 24 Marks)

SECTION – D

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

32. Write a C++ program to find the sum of odd numbers between 0 and 100.
33. Give a detailed account on the structure of a computer.
34. What are flip-flops? Explain the working of master slave JK flip-flop.
35. Describe numerical integration with the help of Trapezoidal rule. Evaluate the $\int_0^1 \frac{dx}{1+x^2}$ using Trapezoidal rule.

(2 × 15 = 30 Marks)