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Reg. No. : ....

Name : ....

Sixth Semester B.Sc. Degree Examination, March 2021.

First Degree Programme under CBCSS

Physics

Core Course – XII

PY 1644 – DIGITAL ELECTRONICS AND COMPUTER SCIENCE

(2015 – 2017 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

(Answer **all** questions in one or two sentences, each question carries **1** mark)

1. Convert the hexadecimal number 5D8F to binary.

2. What is a BCD number?

3. What is a flip flop?

4. What is an EPROM?

5. What is virtual memory?

6. What are constants in C language?

7. What are operators in C- programming?

8. What is the precedence of arithmetic operators in *C?*

9. Define linear regression.

10. How can we make sure that the Newton-Raphson method converges faster?

(10 × 1 = 10 Marks)

SECTION – B

(Answer **any eight** questions, each question carries **2** marks)

11. With examples illustrate binary subtraction.

12. How do you represent a signed number in binary number system?

13. Explain a full adder circuit.

14. Explain controlled inverter using gates.

15. What is the principle of data storage in a magnetic hard disk?

16. Explain the concept of cache memory.

17. What are the different relational operators that C-programming language supports?

18. What are the rules for evaluation of an expression?

19. What are functions in C language?

20. Compare arrays and structures.

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21. What is the Runge-kutta 2nd order method?

22. Differentiate interpolation and extrapolation.

(8 × 2 = 16 Marks)

SECTION – C

(Answer **any six** questions in not exceeding 120 words,
each question carries **4** marks)

23. Convert 10.7(decimal) to its binary equivalent.

24. What are logic gates? Explain AND and OR gates with their truth tables.

25. Explain a half adder circuit.

26. Explain magnetic tape systems.

27. Explain the different types of constants that C language supports.

28. With the help of a flow chart explain the if-else statement.

29. Write a C program to print all Armstrong Numbers from 1 to N.

30. With example explain the steps for fitting an exponential curve.

31. Explain Lagrange interpolation technique.

(6 × 4 = 24 Marks)

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SECTION – D

(Answer **any two** questions, each question carries **15** marks)

32. Explain Master-Slave J-K flip flop using necessary sketches. What is its advantage over J-K flip flop?

33. Explain construction and working of a static RAM cell.

34. Give the classification of 'C operators'.

35. Write the algorithm to find the solution for an equation using the method of successive bisection.

(2 × 15 = 30 Marks)

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