B. Sc. DEGREE END SEMESTER EXAMINATION : NOVEMBER 2023
SEMESTER 5 : PHYSICS
COURSE : **19U5CRPHY07 : DIGITAL ELECTRONICS AND PROGRAMMING**
(For Regular 2021 Admission and Supplementary 2020/2019 Admissions)

Time : Three Hours   Max. Marks: 60

PART A
Answer any 8 (2 marks each)

1. Give 4 examples of escape sequence used in C++? Also list there corresponding character.
2. What is meant by a buffer register?
3. What is an encoder?
4. What is meant by a register?
5. Express the Boolean function F=A+B'C as a sum of minterms.
6. What is meant by member function in C++ programming?
7. Distinguish between accuracy and resolution of a D/A converter.
8. Obtain the truth table for the Boolean Expression $F(x,y,z)= \Sigma (0,2,3)$
9. What are the main problems that are found in procedural programming?
10. Give the range of numbers that a *short int* variable can hold.

(2 x 8 = 16)

PART B
Answer any 6 (4 marks each)

11. Obtain the block diagram and truth table of a Half subtractor circuit.
12. Differentiate between *double* and *long double* in C++.
13. Increment operators can be used as prefix and postfix. What are the difference between these two?
14. What is the role of relational operator in loops ?
15. Using K-Map simplify the Boolean Expression $F(x,y,z)= \pi (0,2,4,6)$
16. Decrement operators can be used as prefix and postfix. What are the difference between these two?
17. How can you construct an RS flip-flop using two NOR gates?
18. Explain the working of a ladder type D/A converter.

(4 x 6 = 24)

PART C
Answer any 2 (10 marks each)

19. Discuss the any 3 types of Decisions made in C++.
20. Discuss K-Map method in simplifying a given boolean expression as POS terms. Using K-Map, simplify the Boolean Function $F(w,x,y,z)= \pi(1,3,7,11,15)$ which has don't care condition $d(w,x,y,z)= \pi (0,2,5)$.
21. Discuss the working of a 3 bit Binary ripple counter? List any of its two uses?
22. What are the importance of *Loops* in C++? List the 3 kind of *loops* used in C++.

(10 x 2 = 20)