

2024

2nd Semester Examination

ELECTRONICS (Honours)

Paper : C 4-T

(C Programming and Data Structures)

[CBCS]

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any **five** questions. 2×5=10

1. Is the following statement a declaration or definition?
extern int i;
2. Give one example where explicit type casting is necessary.
3. Write the difference between *calloc()* and *malloc()* functions.

P.T.O.

(2)

4. What do you understand by garbage value?
5. What is the difference between the 3's in these two expressions?

```
int num[3];
```

```
num[3] = 11;
```

6. What is the function of *break* statement in a loop?
7. Write the array representation of a circular queue after performing the following operations : enqueue (3), enqueue (5), enqueue (7), dequeue ()?
8. Convert the following postfix expression to infix expression : $45 * 2 + 6 /$

Group - B

Answer any **four** questions. $5 \times 4 = 20$

9. A cashier has currency notes of denominations 10, 50 and 100. If the amount to be withdrawn is input through the keyboard in hundreds, write a program in C to find the total number of currency notes of each denomination the cashier will have to give to the withdrawer.
10. What are the main Object-Oriented Programming (OOP) principles? Explain the polymorphism property of OOP with an example. $2 + 3$
11. What do you understand by *dangling else* problem in C? What is an infinite loop? How can it occur in a while or for loop? $1 + 1 + 3$

(3)

12. Explain the difference between function arguments passed by value and passed by reference. Provide examples.
13. Write a programme in C to print the numbers from 3 to 7 and their squares.
14. Write a C programming to read and display a text from the file.

Group - C

Answer any **one** question. $10 \times 1 = 10$

15. Explain how a circular linked list works. How do you check whether a given linked list is NULL-terminated or ends in a cycle? $2 + 8$
16. (a) Write Kruskal's algorithm for finding minimum spanning tree.
(b) Write an algorithm for binary search and compare with linear search. $5 + 5$
