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C20-EC–405

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BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

DECE – FOURTH SEMESTER EXAMINATION

PROGRAMMING IN C AND MATLAB

Time : 3 Hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. List any three arithmetic operators supported by C.

2. Describe the increment operators.

3. Write the syntax of switch case statement.

4. Differentiate between break statements and continue statements.

5. State the use of return statement.

6. Differentiate between address operators and dereferencing operators.

7. List any three pre-processor directives.

8. Write the method of accessing of members of a structure.

9. List the relational operators in MATLAB.

10. Write the usage of who, whose operator.

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PART—B

8×5=40

Instructions : (1) Answer **all** questions.

(2) Each question carries **eight** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. *(a)* Explain while loop with a simple program.

(OR)

(b) Explain nested for loop with a simple example.

12. *(a)* Write a program to find sum of n natural numbers.

(OR)

(b) Write a program to find sum of digits of a given number.

13. *(a)* Explain the operation of getchar(), getch() functions with a simple program.

(OR)

(b) Explain recursion with a simple program.

14. *(a)* Explain the method of initializing a structure variable with a simple program.

(OR)

(b) Explain the method of accessing of members of a union with a simple program.

15. *(a)* Explain the common input/output functions in MATLAB with examples.

(OR)

(b) Explain with an example the matrix operations (i) multiplication and (ii) transpose and inverse using MATLAB.

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PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) The question carries **ten** marks.

(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Analyze the program and write the output of the program.

```
#include<stdio.h>
int function();
int main()
{
    int i;
    i = function();
    printf("%d", i);
    return 0;
}
function()
{
    int a;
    a = 250;
    return 0;
}
```

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