7443

BOARD DIPLOMA EXAMINATION, (C-20)

MAY—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 data types used in C.

2. Write the syntax for nested assignment statement.

3. List any three conditional statements supported by C.

4. Give the syntax of nested for loop.

* 5. Define string.

6. Give the syntax of declaring a pointer.

7. Define a structure in C.

8. Write how to find the size of a structure.

9. State the need for MATLAB in solving engineering problems.

10. Write the usage of linspace operator.

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* statement with a simple program.

(OR)

(b) Explain *if* statement with a simple program.

12. *(a)* Write a program to find whether a given year is *leap year* or not.

(OR)

(b) Write a C program to perform matrix multiplication.

13. *(a)* Explain the string manipulation functions strcat(), strcmp() with examples.

(OR)

(b) Explain passing of parameters to the function with a simple example.

14. *(a)* Illustrate structures with a program to read and print a book database consisting of title of book, author, no. of pages, price as fields.

(OR)

(b) Explain the conditional pre-processor directives with examples.

15. *(a)* Explain the creation of 1D and 2D arrays and m×n matrices in MATLAB.

(OR)

(b) Illustrate plot commands *(i)* plot(x,y), *(ii)* fplot( ) and *(iii)* title( ) in MATLAB.

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 C program.

```c
#include<stdio.h>
int a()
{
    printf("Function");
}
int b()
{
    printf("Function in C");
}
int c()
{
    printf("C function");
}
int main( )
{
    int(*ptr[3])();
    ptr[0] = a;
    ptr[1] = b;
    ptr[2] = c;
    ptr[2]();
    return 0;
}
```

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