7223

BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

DBME – THIRD 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 the logical operators available in C language.

2. Write the syntax of the if-else-if ladder statement in C language.

3. Write about the purpose of the continue statement in C language.

4. Write a C program to declare an array of 100 integers and initialise the array with all 0 (zero) values.

5. State the usage of strcmp() string handling function with the syntax.

6. List the three components of a function prototype.

7. Write the difference between · (dot) and -> operators with respect to structure and union.

8. Define a structure (derived data type) in C language.

9. List any three differences between C language and MATLAB.

10. Write the syntax of the if...end statement in MATLAB.

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 the usage of bitwise operators (&, I, ^, ~, <<, >>) in C language with an example program.

(OR)

(b) Explain the usage of printf() and scanf() with an example program.

12. *(a)* Write a C program to print the first 100 even numbers.

(OR)

(b) Explain the usage of the Switch decision making statement in C with an example program.

13. *(a)* Write a C program to check if a given string contains vowels or not. Program should output "YES" if it contains vowel(s) otherwise it should output "NO".

(OR)

(b) Write a C program to find the sum of *n* natural numbers (*n* to be read from user).

14. *(a)* Differentiate between structure and union in C language using suitable examples.

(OR)

(b) Write a C program to show the usage (declaring, defining variables, accessing variables and members) of Union.

15. *(a)* Write the syntax of for loop in MATLAB and explain its usage with an example program.

(OR)

(b) Explain the usage of (i) plot (*x*, *y*), *(ii)* fplot(), *(iii)* title, and *(iv)* xlabel() commands in MATLAB.

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. Write a C program to find and print the sum of all prime numbers less than 100.

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