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(Revision - 2015)

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2020

PROGRAMMING IN C

[Maximum Marks: 75] [Time: 2.15 Hours]

PART-A

(Answer ***any three*** questions in one or two sentences. Each question carries 2 marks)

I. 1. Write the equivalent C expression for the mathematical equation.

$$\text{Interior Angle} = \frac{(n-2)180}{n}$$

2. What is the output of the following ***printf*** statement?

```
x = 13;
y = 5;
printf(''x/y = %d and x%y = %d'', x/y, x%y);
```

3. Define recursive function.
4. Declare a variable to store the name of an item in a textile shop.
5. Declare a single dimensional floating point array to store the height of 50 students. (3 x 2 = 6)

PART-B

(Answer any ***four*** of the following questions. Each question carries ***6*** marks)

II 1. Explain the use of ***break*** and ***continue*** statement with an example.
2. Write the rules for construction of variable names in C language with examples.
3. Differentiate ***call by value*** and ***call by reference*** with example.
4. Write a C program to find the sum of all elements of a single dimensional integer array.
5. Explain any three storage classes of C with example.
6. Distinguish between ***array*** and ***structure*** with suitable example.
7. Declare a ***student*** structure with the following details.

   Student name, Register Number, Marks for three subjects and ***Total Marks***. Write a C program to read the ***Student name, Register number***, and ***Marks*** of a student from the user and then calculate and update ***Total Marks***.

(4 x 6 = 24)

PART-C

(Answer ***any of the three units*** from the following. Each full question carries 15 marks)

UNIT – I

III (a) Distinguish the operation of ***while*** loop and ***do-while*** loop with an example. (8)

(b) Write a C program to print the multiplication table. The number and limit shall be given as input by the user. (7)

OR

IV (a) Write a C program to read the weight and height of a person and calculate the Body Mass Index (BMI).

$$\boldsymbol{BMI = \frac{Weight}{height \times height}}$$

Where ***weight*** is given in Kilogram and ***height*** is in meter.

Display appropriate message to the user based on his BMI.

(Note: BMI<18.5 – under weight, BMI 18.5 to 25 – Normal weight, and BMI>25 over weight) (8)

(b) Write a C program to find the value of x^n using ***for*** loop. (7)

UNIT – II

V (a) Write a C program to exchange the value of two integer variable by using function. The reading and displaying the values should be done in main function. (8)

(b) Describe the data types of C. (7)

OR

VI (a) Write a C program to find the factorial of a number using recursive function.

(n! = n x (n-1) x (n-2) x…..x 2 x 1) (8)

(b) Distinguish between ***macros*** and ***functions*** with example. (7)

UNIT- III

VII (a) The hourly temperature of a city is stored in two rows of a table. The first row contains temperature in the day time and second row contains temperature in the night time. Write a C program to store these temperature in a two dimensional floating point array and calculate the average temperature of day time and night time. (8)

(b) With suitable example, explain the procedure of passing a single dimensional array to a function. (7)

OR

VIII (a) Write a C program to add two M x N matrix. (8)

(b) Explain how the elements of a two dimensional array is stored in memory with suitable example. (7)

UNIT - IV

IX (a) Explain the syntax of the string library functions ***strcpy(), strlen(),*** and ***strcmp()***. (6)

(b) Write a C program to

Define a structure to store the following details of an ***employee.***

1. Employee Name, 2. Basic Pay, 3. DA, 4. Total Salary.

Store the details of ten employees in an array of structure. ***Employee Name*** and ***Basic Pay*** of each employee should be given as input. ***DA*** and ***Total Salary*** should be calculated and updated for every employee.

DA = 25 percentage of ***Basic Pay***.

Total Salary = Basic Pay + DA. (9)

OR

X (a) What is a structure? Write the syntax of defining a structure with example. (6)

(b) Write C program to input two strings and check whether these strings are same or not. If the strings are different, then concatenate these two strings to a third string and display the third string. (9)
