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13MCA11

First Semester MCA Degree Examination, Dec.2016/Jan.2017
Problem Solving Using C

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. Write a flowchart to find the biggest of three numbers. (05 Marks)
 b. Write the structure of a C program and explain each section in detail. (08 Marks)
 c. What is the output of the following program?

```
main()
{int x = 100, y = 200;
 printf ("%d\n", (x > y)? x : y);
 printf ("%d\n", 10 + x++);
 printf ("%d\n", 10 + ++x);
}
```

 (03 Marks)
 d. What is a variable? Write the rules to frame variable names. (04 Marks)
- 2 a. Explain getchar() and putchar() functions with examples. (04 Marks)
 b. Write the syntax of switch statement and explain its working with an example program. (08 Marks)
 c. Write a C program to find the sum of the digits and reverse of a given integer. (08 Marks)
- 3 a. Explain the working of for loop with an example. (05 Marks)
 b. Write a C program to generate prime numbers between 1 and n. Also count the number of prime numbers. (10 Marks)
 c. What is an array? How to declare and initialize one dimensional array? (05 Marks)
- 4 a. Write a C program to multiply two matrices that satisfy the constraints of multiplication and print both given matrices and product matrix. (10 Marks)
 b. Write a C program to read a string and find the length of it with out using in built function. (05 Marks)
 c. Explain the following string handling functions with examples: i) strcat() ii) strepy. (05 Marks)
- 5 a. Explain the general format of a function definition. (06 Marks)
 b. Write a user defined function to compute factorial of a number and use this in main function to compute nCr $[nCr = n! / ((n - r)! * r!)]$. (08 Marks)
 c. What is a pointer? How to access a variable through its pointer? (06 Marks)
- 6 a. Write a C program that invokes a function called find() to perform the following tasks:
 i) Receives a character array and a single character. (08 Marks)
 ii) Returns 1 if the specified character is found in the array, 0 otherwise. (06 Marks)
 b. Define a structure. How to access structure members? How to initialize structure? (06 Marks)
 c. Explain nested structure with an example. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

- 7 a. Define an employee structure having the employee name, employee number, experience (in years) and salary as its members. Create an array of structure. Develop a C program to print the names and numbers of all the employees who have more than 3 years of experience and salary less than Rs.500. (10 Marks)
- b. Explain the following functions with examples:
i) fopen() ii) fseek() iii) ftell() iv) rewind. (10 Marks)
- 8 a. Explain malloc and calloc functions with examples. (06 Marks)
- b. Write a C program to copy one file content to another file without using inbuilt functions. (08 Marks)
- c. Explain different forms of macro substitutions with examples. (06 Marks)

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