2E2006

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B.Tech. (Sem.II) (Main/Back) Examination - 2014
206 Fundamentals of Computer Programming

[Time : 3 Hours]

[Total Marks : 80]
[Min. Passing Marks : 24]

Instructions to Candidates :

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Unit - I

1. (a) Explain Structure of program in C language briefly and define the concept of preprocessor. (10)

   (b) What is the difference between Constant and Variable? What are the data types in 'C'? Explain with examples. (6)

OR

1. (a) Write a program of add two numbers and explain this program step by step with the help of flow chart. (10)

   (b) What is type casting? Explain its types. (6)

Unit - II

2. (a) Write a program to take marks of a student as input and calculate the grades according to following rules.

Marks Range	Grade
> 85	'S'
> 75– < 84	'A'
> 65– < 74	'B'
> 55– < 64	'C'
> 50– < 54	'D'
< 50	'F'

(10)

   (b) Write a program to check whether the input number is prime or not. (6)

OR

2. (a) Write a program in C language to print the sum of the following series :

$$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \dots$$

(10)

   (b) Write a program to read a 3 × 3 matrix and print its values. (6)

Unit - III

3. (a) Write a program to accept records of different states using array of structure. The structure should contain char state, int population, int literacy rate and int per capita income. Read in suitable data. Display the state whose literacy rate is highest and whose per capita income is highest. (10)

   (b) What is structure in C? Give syntax of declaring a structure with an example. (6)

OR

3. (a) Explain the function fopen() used to open a file in C. What are the different modes associated with fopen()? Explain meaning of each one. (10)

   (b) How do you create array using dynamic memory allocation? Give example and also list benefits of this scheme. (6)

4. (a) Write a program to print reverse of a number using function.

   (b) Write a program to check whether a given character is vowel or not.

OR

4. (a) What do you mean by function? How many types of functions are available in C?

   (b) Write C statement for passing a structure to a function defined in another source file.

Unit - V

5. (a) Draw a block diagram of basic architecture of a computer system.

   (b) Differentiate between random access method and sequential access method for memory devices.

OR

5. (a) Write differences between the following :

   (i) Interpreter and compiler

   (ii) High level, assembly and machine language.

   (b) Calculate r's and $(r-1)$'s compliment of the following:

   (i) $(111010101)_2$ (ii) $(2435)_{10}$

   (iii) $(FA2B)_{16}$ (iv) $(731.241)_8$

   (v) $(24222)_5$ (vi) $(101.001)_2$