1E1024

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B.Tech. I - Sem.(Main/Back) Exam - Jan-Feb. 2012

104 - Computer Programming & IT

(Common to all Branches of Engg.)

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 24

Instructions to Candidates:

*Attempt overall **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.*

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. _____ Nil _____   2. _____ Nil _____

Unit – I

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

1. (b) What do you mean by word length of a processor.

1. (c) Draw a flow chart which takes as input, length of three sides of a triangle and check if it is a right angled triangle.   6+4+6

OR

1. (a) Give reasons why assembly languages and high level languages were designed while computer process only machine language.

1. (b) Draw a flow chart which reads N numbers and computes average of these numbers.   8+8

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Unit – II

2. (a) Write r's complement of following numbers where r is radix (base) of these numbers:

   (i) $(10111010)_2$

   (ii) $(34056)_8$

   (iii) $(8750)_{10}$

   (iv) $(7F3B)_{16}$

   4x2=8

2. (b) Write binary codes for digits 0 to 9 in following coding systems:

   (i) BCD 8421

   (ii) 2421 Codes

   (iii) Excess – 3 Codes

   (iv) Gray Codes.

   4x2=8

OR

2. (a) Describe methods of representing integers and floating point numbers in computer.

2. (b) Using suitable examples, explain addition and subtraction of signed integers in binary form using 2's complement representation for signed numbers.

   8+8=16

Unit – III

3. (a) Consider the following macro

   # define square (x) x*x

   What will be the output of following print statements?

   (i) printf("% d\n", square(7));

   (ii) printf("% d\n", square(-6));

   (iii) printf("% d\n", square(2+3));

(iv)   printf("% d\n", square(6-3));   4x2=8

3.   (b)   Write a program in C which request to type a character as input and then repeat this process if character entered is not 'q' or 'Q'.   8

OR

3.   (a)   Describe the steps involved in compilation process.

3.   (b)   List arithmetic and logical operators available in C.

3.   (c)   Write a program to find sum of following n terms of a series.

$1^2, 2^2, 3^2, 4^2, ...$ 5+5+6=16

Unit - IV

4.   (a)   Write a program in C to do the following tasks in a single program.

(i)   Find maximum (x) and minimum (y) from an array.

(ii)   Find how many times x and y each appear in the array.   10

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

OR

4.   (a)   Describe different modes in which a file can be opened.

4.   (b)   It is required to record start time, end time, and job number for several jobs. Write a program using structures to read these records from keyboard and store them in a file.   6+10=16

Unit – V

5.   (a)   Write functions increase() and decrease() with only one parameter passed. Functions increases or decreases the value passed to it.

5.   (b)   Write a program using a function. Main program reads an array, calls a function reverse () and passes starting address of array to this function, function reverses the array contents and main program prints this reversed array.   8+8=16
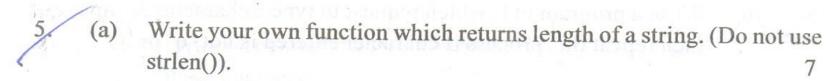
OR

5. (a) Write your own function which returns length of a string. (Do not use strlen()). 7

5. (b) Give one example for each of the following:

(i) Function accepting two pointers and returning an integer value.

(ii) Function accepting two integer values and returning nothing.

(iii) Function accepting array as its parameter and returning a single value.

3x3=9