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Question Paper Code : 97147

B.E./B.Tech. DEGREE EXAMINATION, DECEMBER 2015/JANUARY 2016.

First Semester

Civil Engineering

GE 2112 — FUNDAMENTALS OF COMPUTING AND COMPUTER PROGRAMMING

(Common to all Branches)

(Regulations 2008)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Differentiate mini and micro computer.

2.   Convert 24.3 to base 2, 8 and 16.

3.   List the types of softwares.

4.   What is black box testing and where is it used?

5.   How will you perform what if analysis using excel worksheet?

6.   Draw a flowchart to find the maximum of three numbers.

7.   List the operator precedence in 'C'.

8.   Compare Do-while and until loop constructs.

9.   What is a function prototype?

10. A 'C' program consists of the following statements

     char u,v = 'A';

     char *pu, * pv = &v;

     *pv = v+1;

     u = *pv+1;

     pu = &u;

     Each character occupies 1 byte of memory. u is stored in $F8C_{16}$ and v stored in $F8D_{16}$. Give value assigned to &v, pv and * pv.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss on fifth generation computers. (8)

    (ii) Perform binary addition and multiplication on

    $A = 110101_2$

    $B = 111110_2$. (4)

    (iii) Convert 73_8 to binary and hexadecimal number system. (4)

    Or

    (b) (i) Draw a block diagram of a computer and explain the functions of various parts of computer. (8)

    (ii) Convert 100.1011_2 to octal, hexadecimal and decimal number. (6)

    (iii) What is the advantages of using hexadecimal numbers? (2)

12. (a) Explain software development life cycle in detail. (16)

    Or

    (b) Discuss internet applications like E-mail, search engines and chatting in detail. (16)

13. (a) (i) Write an algorithm to arrange a set of numbers in descending order. (8)

    (ii) Write a pseudocode for simulating a simple calculator for performing +,–,* and /. (8)

    Or

    (b) (i) Explain the process of formatting text using MS-WORD text processor. (8)

    (ii) How will you include an object, picture and graphics in a spreadsheet package? Explain. (8)

14. (a) (i) Write a menu driven program in C which has the following options.

    (1) Factorial of a number

    (2) Prime or not

    (3) Odd or even

    (4) Exit. (10)

    (ii) Write a C program to get a five digit number as input through keyboard and calculate the sum of its digits. (6)

    Or

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(b) (i) Write a 'C' program using conditional operators to check whether a character entered is lower case alphabet, special symbol or upper case character. (8)

(ii) The approximate intelligence of a person can be calculated using the following formula $i = 2 + (y + 0.5x)$.

Write a 'C' program which will produce a table of values of i, y and x where y varies form 1 to 6 and for each value of y, x varies from 5.5 to 12.5 in steps of 0.5. (8)

15. (a) (i) Write macro definitions with arguments for calculation of area and perimeter of a triangle, a square and a circle. Store these definitions in a file called "areaperi.h" include this file in your program and call the macro definitions for calculating area and perimeter for different squares, triangles and circles. (10)

(ii) Write a C program using pointer notation that will generate a table containing the following three columns.

$t \quad a\,e^{bt}\sin ct \quad a\,e^{bt}\cos ct$. (6)

Or

(b) (i) Write a program in C using file pointer and structures to store customer records in a bank having following entities.

Name, address, account number, account type, old balance, new balance and payment. The program must allow insert, delete and updating customer records. (10)

(ii) Write a function that calculates and displays all the roots of a quadratic equation. (6)

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