Code : 100204

B.Tech 2nd Semester Exam., 2019

PROGRAMMING FOR PROBLEM SOLVING

(New Course)

Time : 3 hours   Full Marks : 70

Instructions :

(i) The marks are indicated in the right-hand margin.

(ii) There are **NINE** questions in this paper.

(iii) Attempt **FIVE** questions in all.

(iv) Question No. **1** is compulsory.

1. Choose the correct alternative (any *seven*) :

                                            2×7=14

   (a) What will be the data type of result of the following operation?

       (float)a * (int)b/(long)c * (double)d

       (i) int

       (ii) long

       (iii) float

       (iv) double ✓

(2)

   (b) What does the following declaration mean?

       int (*ptr) [10];

       (i) ptr is array of pointers to 10 integers

       (ii) ptr is a pointer to an array of 10 integers

       (iii) ptr is an array of 10 integers

       (iv) ptr is a pointer to array

   (c) Which of the following is a correct format for declaration of function?

       ✓ (i) return-type function-name (argument type);

       (ii) return-type function-name (argument type) { }

       (iii) return-type (argument type) function-name;

       (iv) All of the above

   (d) The value obtained in the function is given back to main by using _____ keyword.

       (i) return ✓

       (ii) static

       (iii) new

       (iv) volatile

(e) Which data type is most suitable for storing a number 65000 in a 32-bit system?

   (i) signed short

   (ii) unsigned short

   (iii) long

   (iv) int

(f) Which of the following declarations is not supported by C?

   (i) String str;

   (ii) Char *str;

   (iii) Float str = 3e2;

   (iv) None of the above

(g) Which of the following is an invalid if-else statement?

   (i) if (if (i==1)) {}

   (ii) if (func 1 (a)) {}

   (iii) if (a) {}

   (iv) if ((char) a) {}

(h) A local variable declaration with no storage class specified is by default

   (i) auto

   (ii) extern

   (iii) static

   (iv) register

(i) Automatic variables are initialized to

   (i) zero

   (ii) junk value

   (iii) None of the above

   (iv) Both (i) and (ii)

(j) The getchar( ) function is defined in ____ header file.

   (i) conio.h

   (ii) stdio.h

   (iii) iostream.h

   (iv) None of the above

2. (a) What do you understand by the term 'problem solving'? How can programming be used to do problem solving?   4

(b) Discuss about the components of computer system. How are they involved in computer programming activity? 6

(c) Write the algorithm for exchanging the values of two variables. 4

3. (a) Differentiate between flowchart, pseudo-code and source code. 5

(b) What are the outcomes of compilation of a program? Discuss in detail. 6

(c) What are constants? List the types of constants as defined in C language. 3
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4. (a) What are the libraries? How are they different from header files? 4

(b) What is an array? Write a C program to find the average of 10 numbers of an array. 6

(c) What do you understand by the operator precedence? Explain. 4

5. (a) Define storage classes of C with some appropriate examples. 6

(b) What is branching? What are the possible types of branching and the C statements used for such type of branching? Give a detailed explanation with example. 8

6. (a) Write a C program to calculate (12!)/8. The operation is factorial of 12, divided by 8. Also comment by examine whether the algorithm used is efficient. 9

(b) What is type casting? Explain its classification through examples. 5

7. (a) Give the purpose, proper syntax and other variants of 'getch( )' and 'gets( )' functions. 5

(b) How can an array of numbers be passed to function as parameter? Write an example C program in support. 6

(c) What is dynamic memory allocation in C? 3

8. (a) Differentiate between the following : 7
   (i) Structures and Union
   (ii) Formatted and Unformatted data files

(b) What is a file? List different operations performed on file. How are they achieved? Explain. 7

9. (a) Write a C program to create an array of structures named "STUDENT" with fields, Name, Cell no, Address, and Marks. How to show any student record using this structure? 6

   (b) Which of the sorting algorithm is better than other and why? Explain. 4

   (c) Write C program for merge sort algorithm. 4

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