

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

(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

(3)

(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) {}

(4)

(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?

- (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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