TDC (CBCS) Odd Semester Exam., 2022

STATISTICS

(Honours)

(5th Semester)

Course No. : STSHCC-502T

(Statistical Computing using C/C++ Programming)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

UNIT—I

1. Answer any *two* of the following questions : 2×2=4

(a) Determine which of the following is/are valid identifier(s). If invalid, explain why :

(i) Name and address

(ii) return_1

(b) Write the appropriate declaration for each group of variables/arrays given below :

(i) double precision variables :

gross, tax, net

(ii) 100-element integer array :

Silchar

(c) What is the ASCII character set? How common is its use?

2. Answer any *one* of the following questions : 6

(a) (i) What is an array variable? How does an array variable differ from ordinary variable? 2

(ii) Name and describe several data-type qualifiers in C. 4

(b) (i) What is an escape sequence? What is its purpose? 2

(ii) Name and describe several types of constants in C. 4

UNIT—II

3. Answer any *two* of the following questions : 2×2=4

(a) Suppose a, b and c are integer variables that have been assigned the values $a = 8$, $b = 3$ and $c = -5$. Determine the values of each of the following expressions :

(i) $a * b / c$

(ii) $a * (c \% b)$

(b) How are library functions accessed? How is information passed to a library function from the access point?

(c) What is an operand? What is the relationship between operators and operands?

4. Answer any *one* of the following questions : 6

(a) (i) What is the purpose of getchar function? How is it used within a C program? 2

(ii) Describe several types of relational operators in C. 4

(b) (i) A C program contains the following variable declarations :

float $a = 2 \cdot 5$, $b = 0 \cdot 0005$, $c = 3000 \cdot 0$

Show the output of the following statements : 2

(1) printf("%3f %3f %3f", a, b, c);

(2) printf("%8·3f %8·3f %8·3f", a, b, c);

(ii) Describe several types of unary operators in C. 4

UNIT—III

5. Answer any *two* of the following questions : 2×2=4

(a) Describe the output generated by the following C program :

```
#include <stdio.h>
main( )
{
   int i=0, x=0;
   while(i<20) {
      if(i%5= =0) {
```



```
      x+=i;
      printf("%d", x);
      }
      ++i;
   }
   printf("\nx=%d", x);
}
```

(b) What is the purpose of goto statement? How is the associated target statement identified?

(c) Summarize the syntactic rules associated with the while statement.

6. Answer any *one* of the following questions : 6

(a) (i) What is meant by looping? Name different types of looping in C. 2

(ii) What is the purpose of 'for' statement? How does it differ from 'while' statement and the 'do-while' statement? 4

(b) (i) Summarize the syntactic rules associated with if-else statement. 2

(ii) What is the purpose of 'continue' statement? Within which control statements can the 'continue' statement be included? Compare with 'break' statement. 4

UNIT—IV

7. Answer any *two* of the following questions : 2×2=4

(a) Describe the array defined in the following statement. Indicate what values are assigned to the individual array elements :

int p[2][4] = {1, 2, 3, 4, 5, 6, 7, 8}

(b) Write an appropriate array definition for the following problem situation :

Define a one-dimensional character array called 'POINT'. Assign the string 'NORTH' to the array elements.

(c) Describe, with example, the difference between formal arguments and actual arguments.

8. Answer any *one* of the following questions : 6

(a) *(i)* What are subscripts? How are they written? 2

(ii) How are arrays usually passed in C? Summarize the rules for writing a one-dimensional array definition. 4

(b) *(i)* In what way does an array differ from an ordinary variable? 2

(ii) How are two-dimensional arrays defined? Compare the manner in which one-dimensional arrays are defined. 4

UNIT—V

9. Answer any *two* of the following questions : 2×2=4

(a) What is a function? Mention the advantages to the use of functions.

(b) What are arguments? What is their purpose?

(c) What is recursion? What advantage is there in its use?

10. Answer any *one* of the following questions : 6

(a) *(i)* What is a function prototype? How do function prototypes differ from the traditional function declarations? 2

(ii) Write a C program to compute factorial of an integer quantity using function. 4

(b) (i) Enumerate rules that apply to a function call. Can a function be called from more than one place within a program? 3

(ii) Explain the purpose of the keyword 'void' in a function declaration. Also, summarize the rules governing the use of the 'return' statement. 3

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