UG Odd Semester (CBCS) Exam., December—2019

COMPUTER SCIENCE

(1st Semester)

Course No. : MCSCC–104

(Introduction to Programming Language)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. *(a)* Discuss the block diagram of a digital computer. 4

(b) Write short notes on the following : 5+5=10

(i) Operating system

(ii) Compiler

2. *(a)* Write short notes on the following : 5+5=10

(i) Internet

(ii) Electronic mail

(b) Define algorithm. What are the differences between an algorithm and a flowchart? 4

UNIT—II

3. *(a)* Write a program in FORTRAN to convert Fahrenheit temperature to Celsius. 4

(b) Describe about the structure of a FORTRAN program. 5

(c) Write a program in FORTRAN to read the radius of a circle and compute its area and circumference. 5

4. *(a)* Evaluate the following expressions : 6

REAL a = 2·5, b = 2·5

(i) $a + 2{\cdot}5 / b + 4{\cdot}5$

(ii) $(a + 2{\cdot}5) / b + 4{\cdot}5$

(iii) $a / 2{\cdot}5 / b$

(b) Write a program in FORTRAN by using GOTO and IF–THEN statements with their syntaxes. Also write a program by using GOTO and IF–THEN statements. 8

UNIT—III

5. *(a)* Tabulate the following function using DO loop : 10

$$f(x) = (x^2 + 2x + 3) / (x - 20)$$

for—

(i) $x = -6, -5, -4, -3, -2, -1, 0, 1, 2, 3$

(ii) $x = -6{\cdot}5, -4{\cdot}5, -2{\cdot}5 - 0{\cdot}5, 1{\cdot}5, 3{\cdot}5$

(b) What is CONTINUE statement? Give example. 4

6. *(a)* Write a FORTRAN program to transpose the following matrix : 10

$$A = \begin{bmatrix} -9 & 8 & 7 & 16 & 0 \\ 4 & 13 & 2 & -1 & 5 \\ -9 & 4 & 3 & 1 & -8 \end{bmatrix}$$

(b) Write the syntax of a DO-WHILE loop. Give example. 4

UNIT—IV

7. *(a)* Write short notes on the following : 9

(i) Sorting

(ii) Merging

(iii) Searching

(b) What is a Subroutine? Write a FORTRAN program by using subroutine. 5

8. *(a)* Describe how to write and use user defined functions in FORTRAN. 6

(b) Write a function which calculates and returns the distance between any two points whose coordinates are

(x_1, y_1), (x_2, y_2)

UNIT—V

9. *(a)* Write short notes on the following : 9

(i) Logical constants

(ii) Logical variables

(iii) Logical expressions

(b) Write a program to find the reverse of a string. 5

10. *(a)* Write short notes on the following : 9

(i) ASSIGN statement

(ii) COMMON statement

(iii) EQUIVALANCE statement

(b) Define A-field and H-field descriptors. 5

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equivalence