UG/PG (CBCS) ODD SEMESTER EXAMINATION, 2022

COMPUTER SCIENCE

1st Semester

Course No. : MCSC-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 any five questions, taking one from each unit)

UNIT-I

1. (a) What is a computer system? What is operating system and what are its functions? 2+2+4=8

   (b) What is algorithm? Write an algorithm to check a given number is odd or even? 2+4=6

2. (a) Write differences between following : 4+2=6

   (i) Compiler and Interperfer

   (ii) High level language and low level programming language.

   (b) Write basic applications of computer. 3

   (c) What is flowchart? Write symbol for start and stop, processing box and decision box. 2+3=5

UNIT-II

3. (a) Write the general format of READ statement and also write rules for the READ statement. 2+3=5

(b) Write the differences between STOP as statement and END statement. 2

(c) Write the general format of the F-format and also give example. 1+2=3

What is the value of A stored in the following statement.

A= J/K + I – J/I ✶ K + J

where I= 3 J=8, K=4

(d) Write an algorithm to read x, n, and evaluate the sum of the series. 4

$1 + X + X^2 + X^3 + ... X^n$

4. (a) Write the general format of Arithmetic IF statement and also draw the flowchart. 4

(b) Consider the following given function :

$$Y = \begin{cases} X^9 \text{ if } X < 5.0526 \\ X^3+2X+9, \text{ otherwise} \end{cases}$$

Write an algorithm to evaluate Y using logical IF statement and also draw the flowchart. 5

(c) Why are the following unacceptable as FORTRAN real constant? 2

(i) 2375 (ii) 35E17

(d) Write function subprogram to find the factorial of a number. 2

UNIT-V

9. What are the purposes to use the following statements show with an example. 14

(i) COMMON statement

(ii) EQUIVALENCE statement

(ii) ASSIGN statement

10. Write short note on : 14

(i) A-Field

(ii) H-Field

(iii) L-Field

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(d) Why are the following unacceptable as FORTRAN integer. 2

(i) 7,158 (ii) 46E-4

(e) What is the output of the following program segment. 1

```
10 write (*=1)
1 FORMAT (IX, 'Welcome)
GO TO 10
STOP
END
```

UNIT-III

5. (a) Write a FORTRAN DO loop to print the negative number between –1 to –100 and their square. 2

(b) Write the general form of the DO loop and also draw the flowchart for the same. 2+2=4

(c) Identify the error (if any) in the following DO statements. 2

(i) DO 45 X=1, 25

(ii) DO 20 I K=25, 1

(d) Write an algorithm to read 100 numbers and print all the numbers less than 50 using DO loop and also draw the flowchart. 3+3=6

6. (a) Write an algorithm and draw a flowchart for finding minimum of n numbers. 3+3=6

(b) Write an algorithm to find sum of n numbers and draw flowchart. 3+3=6

(c) Determine the number of times and for which values of the running variable will the loop be repeated in the following cases. 2

(i) DO 100 L= 1, 5, 5

(ii) DO 10 I= 1, 10, 2

UNIT-IV

7. (a) Write the differences between FUNCTION SUB program and SUBROUTINE SUBPROGRAM. 5

(b) Write a function subprogram to calculate.

$$\text{RESULY}(A,B)=\begin{cases}\text{If } A\geq 40,\ B\geq 40 \text{ and } A+B>50\\ 0, \text{ otherwise}\end{cases}$$ 5

(c) Write the general format of CALL statement. 2

(d) Write a subroutine subprogram to choose the biggest of two number A and B. 2

8. (a) What is subprogram? How many types of subprogram are there in FORTRAN? Name them with one example for each. 2+1+2=5

(b) Write an algorithm to read radius and height of one cylinder and find the volume, area of curved surface, and the area of full outer surface. 5

(c) Write the general form of the FUNCTION statement. 2