UG Odd Semester (CBCS) Exam., December—2016

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)* Describe the various classifications of computer. 8

(b) Write the roles of computer in the field of education and health care. 6

2. *(a)* Draw the block diagram of a computer and explain its working. 8

(b) What are the various types of software? 2

(c) What are the problems with programming in machine code? 2

(d) How did assembly language solve the problem of programming in machine code level? 2

Unit—II

3. *(a)* What is flowchart? Draw a flowchart to find the smallest of two numbers. 2+5=7

(b) What is the purpose of the sixth column of FORTRAN coding sheet? 2

(c) What is the maximum length of an integer constant? 2

(d) *(i)* If P 0·5, Q 2·0, R 7·3, S 10·4, find the value of X of the following statement : 2

$$X \quad 6{\cdot}0 \quad P \quad Q \quad (R \quad S \quad 4{\cdot}0)$$

(ii) Write the following expression in FORTRAN : 1

$$\frac{5\cos A}{3\sin B}^{4\ 5}$$

4. *(a)* What are the input and output? 2

(b) Suppose X, Y and Z are the following function of t :

$$X \quad 8t^2 \quad t^3 \quad 4$$
$$Y \quad \sin t \quad \cos 2t$$
$$Z \quad e^{3t} \quad 5$$

Write a FORTRAN program to read t and print X, Y and Z values. 5

(c) Suppose K 12345. Consider the statement :

```
WRITE (  , 41) K
```

Describe the output if the accompanying FORMAT statement is—

(i) 41 FORMAT (18);

(ii) 41 FORMAT (4X, I3). 3

(d) What are carriage control and repetition factor? 2

(e) The following is not a valid FORTRAN statement. Write the reason for invalidity : 2

```
      READ (2, 1), K, M+1, L
   |  FORMAT (1X, 3I5)
```


UNIT—III

5. *(a)* What do you mean by control statement? Describe briefly about the FORTRAN control statement. 10

(b) Write the following statements using arithmetic IF statements : 2+2=4

(i) IF (X. GT. Y) GO TO 100
GO TO 140

(ii) GO TO (25, 25, 45), J

6. *(a)* Write a DO loop to output—

(i) the odd integer between 1 and 49;

(ii) the squares of even integers between 2 and 50. 6

(b) Find the value of K after the following segment is executed : 3

```
      K = 2
      DO 10 I = 3, 8, 2
      K = K+1
10    CONTINUE
```

(c) Write the following without using DO loops : 3

```
      DO 100 I = 1, 100
      DO 200 J = 1, 25
      WRITE (  , 1) I, J
200   CONTINUE
100   CONTINUE
```

(d) What is the purpose of DO loop? 2

UNIT—IV

7. *(a)* Write the rules for subscripted variables. 4

(b) Write a FORTRAN program to read *n* numbers and find the biggest number. 6

(c) What is an array? Why is DIMENSION statement required when subscripted variables are used? 4

8. *(a)* What is subprogram? What are the different types of subprogram? Explain with example. 7

(b) Write a program for matrix addition. 7

UNIT—V

9. *(a)* Is it possible to form a substring from a string in FORTRAN? If yes, write the general format to form a substring. 1+2=3

(b) Write a program to read the name of a month and print only the first three characters. 6

(c) What is logical variable? Consider the following program and find the minimum marks in EXT and INT for a student to pass the exam : 2+3=5

```
REAL INT, EXT
LOGICAL PASS
READ (  , 1) INT, EXT
PASS = ((INT . GT . 40) . AND .
         (EXT . GE . 39) . OR .
         (INT + EXT . GT . 160))
IF (PASS) WRITE (  ,  ) 'PASSED'
STOP
END
```

10. *(a)* What are file, record and fields? Give examples. 6

(b) What is the purpose of the END FILE statement? 2

(c) Create a sequential file and store the serial numbers, name, basic pay of 5 employees of a company. 6

★ ★ ★