

SECOND/THIRD SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/
TECHNOLOGY— OCTOBER, 2014

PROGRAMMING METHODOLOGY

(For III Semester CB and for II Semester all branches except CP & CB)

[Time : 3 hours

(Maximum marks : 100)

Marks

PART—A

(Maximum marks : 10)

I Answer all questions in one or two sentences. Each question carries 2 marks.

1. Give the flowchart symbols for :
 - (a) Input
 - (b) decision
2. Differentiate between a pretest loop and a post test loop.
3. Write the output for the following pseudo code.
Declare name [20] as character
Set name = "ELSALVADOR"
Write length (name).
4. Give one advantage and one disadvantage of a sequential file.
5. State the use of a case statement.

(5x2=10)

PART—B

(Maximum marks : 30)

II Answer *any five* of the following questions. Each question carries 6 marks.

1. Write the pseudo code to display the name of the day when the number corresponding to the day is entered. Use case structure.
2. Write an algorithm to find the root of a quadratic equation.
(Hint : root of a quadratic equation = $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$)
3. Write the pseudo code to add two square matrices.
4. Write an algorithm to construct the following multiplication table.

1	5	5
2	5	10
3	5	15
4	5	20
5	5	25

5. Elaborate on the following operations on sequential files :
 (a) Create (b) Write (c) Read
6. With suitable example explain the concept of recursion.
7. Compare sequential and random access files.

(5x6=30)

PART—C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT – I

- III (a) Write the pseudo code to compute the salestax in a jewellery shop @ 10% when the price of the jewellery is input. 6
- (b) Explain the following types of operators :
 (i) relational operators 5
 (ii) logical operators 4

OR

- IV (a) Describe any three conditional statements. 9
- (b) Write the pseudo code to find the factorial of a positive integer N.
 ($N! = 1*2*3* \dots (N-1)*N$) 6

UNIT – II

- V (a) Write an algorithm to calculate the Electricity Bill using the last month reading and current reading (units consumed = current reading — last month reading).
 The rate is given as follows.

Units consumed	Rate
0-100	₹ 1 per unit
101-200	₹ 100 + ₹ 1.50 per unit, excess of 100 units
201-300	₹ 250 + ₹ 2 per unit in excess of 200 units
Above 300	₹ 300 + ₹ 3 per unit in excess of 300 units

Metre charge of ₹ 50 is compulsory to all the above cases. 9

- (b) Write short notes on counter controlled loops. 6

OR

- VI (a) The surface area of a closed cylinder is obtained by the formula.
 Surface area = $2\pi r^2 + 2\pi rh$
 Write an algorithm to solve the equation by entering the radius (r) and height (h) of the cylinder. 8
- (b) List the advantages and disadvantages of using pseudo codes. 7

UNIT – III

- VII (a) Write a program that searches an array of 20 names. If a particular name "John" is found then the program should display "found". Otherwise display "Not found". 8
- (b) Write short notes on character Arrays. 7

OR

- VIII (a) Write a program to input the marks of 25 students and then display them in descending order. 9
- (b) Give the steps for linear search. 6

UNIT – IV

- IX (a) Write an algorithm to find the reverse of a number using function. 8
- (b) Describe global variables and local variables. 7

OR

- X (a) Write an algorithm to find the prime numbers between 1 and 50 (use function). 9
- (b) Differentiate between user defined function and Built-in function. 6