

S.E. (Computer Engg.) (First Semester) EXAMINATION, 2010
PROGRAMMING AND PROBLEM SOLVING
(2008 COURSE)

Time : Three Hours

Maximum Marks : 100

- N.B. :—** (i) Answer *three* questions from Section I and *three* questions from Section II.
- (ii) Answers to the two Sections should be written in separate answer-books.
- (iii) Neat diagrams must be drawn wherever necessary.
- (iv) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.
- (v) Assume suitable data, if necessary.

SECTION I

1. (a) Consider any *one* problem and solve that problem using six steps of problem solving. Explain each step in detail. [8]
- (b) State and explain any *four* difficulties with problem solving. [4]
- (c) Compare an algorithmic solutions and heuristic solution. Support your answer with suitable example. [4]

Or

2. (a) The railway ticket reservation system (single counter) is to be computerized. Prepare solution to this problem using the following tools :
- (i) IPO chart
- (ii) Problem analysis chart
- (iii) Interactivity chart. [8]
- (b) Write a pseudo code algorithm to solve the problem given in Q. 2 (a). [4]

P.T.O.



(c) What is the order of processing of the following equations ?

$$R = P < Q \text{ AND } S * T \text{ OR } U > V + W - C/3$$

$$R = A + (((B - C)/D) + E ^ F + (G - H) * I) ^ (J - K) [4]$$

3. (a) Write an algorithm to calculate and print result of your exam. (Semester - I). Identify the modules (functions) and the parameters to find the solution to this problem. Create a data dictionary for the parameters you have identified. [8]

(b) Draw and explain coupling diagram for problem given in Q. 3 (a). [4]

(c) Take three integers and find the minimum integer among three. Create a decision table to solve this problem. [4]

Or

4. (a) Design an algorithm to calculate the salary of an employee using the following problem solving strategies :

(i) Sequential logic

(ii) Decision logic

(iii) Iterative logic

(iv) Selection.

To calculate the salary consider designation, no. of days worked, wages per day, basic salary, allowances, and deductions. Calculate salary according to the designation of an employee. [8]

(b) What are the different parameters passing methods ? Explain each method with suitable example. [4]

(c) Explain the concept of local variables and global variables with suitable example. [4]

5. (a) How one can develop efficient computer solutions to problem ? [4]

(b) Design and explain an algorithm to find the sum of the digits of an integer number. [6]



