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Paper Code : CS-701

SOFTWARE ENGINEERING

Time Allotted : 3 Hours | *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$

i) DFD shows

a) the flow of data

b) the processes

c) the areas where they are stored

d) all of these.

ii) Coding and testing are done in which of the following manner ?

a) Adhoc b) Top-clown

c) Cross sectional d) Bottom-up.

[Turn over

iii) The largest percentage of total life cycle cost of software is

a) Design cost b) Coding cost

c) Maintenance cost d) Testing cost.

iv) Software maintenance includes

a) Setting preventing maintenance policy for servers

b) Installation of software at site

c) Designing of software for maintenance purposes

d) Bug fixing.

v) Main difference between program testing and system testing is

a) System testing focuses on testing the interfaces between programs, program testing focuses on individual programs

b) Program testing is more comprehensive than system testing

c) System testing is tough and program testing is easy

d) none of these.

vi) The most creative and challenging phase of system life cycle is

a) Design b) Feasibility study

c) Maintenance d) none of these.

vii) The database design activity deals with the design of makautonline.com

a) Logical database

b) Physical database

c) both (a) and (b)

d) none of these.

viii) Coupling is a measure of

a) Relative functional strength

b) Interdependence among module

c) both (a) and (b)

d) none of these.

ix) Decision support systems are used to

a) Evaluate and analyze the mission of organization

b) To perform accounting

c) Perform multiple activities simultaneously

d) none of these.

x) Prototype is a

a) Working model of existing system

b) Mini model of existing system

c) Mini model of processed system

d) none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 1

2. Explain Spiral Model for software development with a diagram.

3. Why Project Planning is needed ? Draw the diagram for precedence ordering among planning activities. 2 + 3

4. Explain Empirical Cost Estimation Techniques.

5. What is meant by cohesion ? How should software be designed considering cohesion ? What is the difference between cohesion and coupling ? 1 + 2 + 2

6. Distinguish between error and failure. Which of the two is detected by testing ? Justify your answer. 2 + 3

GROUP – C
(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. Suppose you are the Project Manager of a Software Project that consists of following Activities in the table and you have to draw the activity network and find the critical tasks of the project.

Draw the Gantt chart of the Project (Consider Resources allocation will start from 12th March, 2010).

7 + 8

Activity No.	Activity Name	Duration (weeks)	Immediate Predecessor
1.	Obtain Requirements	4	–
2.	Analyze Operations	4	–
3	Define Subsystems	2	1
4.	Develop Database	4	1
5.	Make Decision Analysis	3	2
6.	Identify Constraints	2	5
7.	Build Module 1	8	3, 4, 6
8.	Build Module 2	12	3, 4, 6
9.	Build Module 3	18	3, 4, 6
10.	Write Report	10	6
11.	Integration And Testing	8	7, 8, 9
12.	Implementation	2	10, 11

8. Consider the following C Program :

```
Int Compute_gcd (x, y )

int x, y :

{

  while ( x! = y )

    if ( x > y )  then x = x - y ;

    else y = y - y ;

  return x;

}
```

a) Find out the estimated length, Program vocabulary, Program volume, Effort, Time. Comment on the technique that you use to solve the problem.

b) Compare Halstead s length and volume measures of size with the LOC measure. 10 + 5

9. a) What is SDLCM ? What are the Disadvantages in Classical Waterfall Model ?

b) Why we use FP instead of LOC ? Why do you think the FP need to be adjusted ?

c) What is the Heuristic Project Estimation technique ?

d) A Project size of 200 LOC is to be developed. Software development team has average experience on similar type of project. The project schedule is not very tight. Calculate Effort, Time of Development, Average Staff size and Productivity of the Project. (1 + 3) + (2 + 2) + 2 + 5

10. a) Draw a DFD that depicts and ATM system (only withdrawal) mentioning suitable Assumptions. Now build a structure chart.

b) An embedded system of size 400 KLOC has to develop. Project manager has a choice of hiring from two pools of developers : very highly capable with very little experience (AEXP very high) or developers of low quality (LEXP very low) but a lot of Experience. Find the values of EAF, Effort & Development Time. (5 + 2 + 3) + 5

11. Write short notes on any *three* of the following : 3 ×

a) Team Structure of an Organization

b) Risk Identification & Assessment

c) CASE TOOLS

d) Black box testing

e) Work Break down Structure & Utility of PERT Chart.