ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE - 2009

INFORMATION SYSTEM ANALYSIS AND DESIGN

SEMESTER - 2

Time : 3 Hours] [Full Marks : 70

GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 10 × 1 = 10

i) In an SRS we should have

a) only one consolidated DFD

b) one DFD for each of the major operations to be carried out

c) DFDs as desired by top management

d) one DFD for each input document.

ii) Cost-benefit analysis is performed as a part of

a) System design

b) System specification

c) System performance assessment

d) Feasibility analysis.

iii) A decision table is preferable when the number of

a) conditions to be checked in a procedure is small

b) conditions to be checked in a procedure is large

c) actions to be carried out are large

d) actions to be carried out are small.

iv) A context diagram

a) describes the context of a system

b) is a DFD which gives an overview of the system

c) is a detailed description of a system

d) is not used in drawing a detailed dFD.

v) Project rise factor is considered in

a) Waterfall model b) Prototyping model

c) Spiral model d) RAD model.

vi) Which phase is not available is software life cycle ?

a) Coding b) Testing

c) Maintenance d) Abstraction.

vii) The Testing process only reveals

a) failures b) errors in code

c) errors in logic d) none of these.

viii) PERT means

a) Project Estimation and Review Technique

b) People Evaluation and Review Technique

c) Project Estimation and Review Technique

d) Product Evaluation and Review Technique.

ix) Which one is not a size measure for software ?

a) LOC b) Function Count

c) Cyclomatic Complexity d) Halstead's Program Length.

x) Structured English is a

a) Structured Programming Language

b) Description of Process in simple English

c) Method of describing computational procedures reasonably precisely in English

d) Natural Language Based Algorithmic Language.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Discuss briefly the different levels of CMM.

3. a) What do you mean by a software process ? Mention the differences between a methodology and a process.

b) On which phase should we give maximum effort while developing a S/W using waterfall model ? Why ? (1 + 2) + 2

4. a) What do you mean by feasibility study ? What are the important activities carried out during the phase of S/W development ?

b) What is a throwaway prototype ? 5

5. Mention the drawbacks of waterfall model. Clearly state how these are overcome in iterative enhancement model. 5

6. A marketing company wishes to construct a decision table to decide how to treat clients according to three characteristics : Gender, City Dweller and age group : *A* (under 30), *B* (between 30 and 60), *C* (over 60). The company has four products (*W*, *X*, *Y* and *Z*) to test market. Product *W* will appeal to female city dwellers. Product *X* will appeal to young females. Product *Y* will appeal to male middle aged shoppers who do not live in cities. Product *Z* will appeal to all but older females :

Make a decision table for taking above decision. 5

GROUP – C

(Long Answer Type Questions)

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

7. Suppose you have the following set of activities and activity relationships. The activities, their predecessors and optimistic, Pessimistic and most likely time are given in the table :

Activity	Predecessors	Optimistic Time	Pessimistic Time	Most Likely Time
A	------	2	4	6
B	------	3	5	9
C	A	4	5	7
D	A	4	6	10
E	B, C	4	5	7
F	D	3	4	8
G	E	3	5	8

a) Find the expected time in each activity and draw PERT chart for these activities.

b) Calculate the earliest start time, Latest start time, Earliest finish time and Latest finish time for each activity.

c) Draw the critical path. 5 + 7 + 3

$3 \times 5 = 15$

8. Write short notes on any *three* of the following :

a) UML

b) Inheritance

c) Prototyping

d) Structure English

e) McCabe's Cyclomatic complexity.

9. A college runs a student admission system every year for a batch of 40 students for the first year of M. tech course. The procedure on announcement of the admission in newspaper advertisement is released, applications are called from the candidates, written test is administered and a list of 40 students admitted is pasted on the notice board. The selected candidates are asked to pay a Rs. 20,000 fee within a week from the date of announcement. In this domain perform the following activities :

a) Identify actors

b) Develop three use cases

c) Complete the class diagram with properties

d) Draw interaction diagram

e) Draw activity diagram

f) Draw total system diagram with packages. $2 + 2 + 2 + 3 + 3 + 3$

10 What is $E - R$ Diagram ? Draw an $E - R$ diagram for Hospital Management System with the clear concept of Strong entity set & Weak entity set. Write down the difference between Physical & Logical DFDs. $2 + 8 + 5$

11. An advertisement is issued giving essential qualifications for the course, the last date for receipt of application and the fee to be enclosed with the application. A clerk in the Registrar's office checks the receipt applications to see a mark sheet and fee are enclosed and sends valid applications to the concern academic department. The department checks the application in detail and decides the applicants to be admitted, those to be put in waiting list and those rejected. Appropriate letters are sent to the Registrar's office which intimates the applicant :

Draw the physical and logical DFDs corresponding to the above problem. 15

END