

14-03083
Total number of printed pages – 6

B. TECH
BCSE 3304

FIFTH SEMESTER EXAMINATION – 2005

INFORMATION SYSTEM & DESIGN

Full Marks – 70

Time : 3 Hours

The figures in the right hand margin indicate full marks for the questions.

Answer question No. 1 which is compulsory and any five from the rest.

1. Give short answers to the following questions.

10×2

- (a) For modern user interface design, LOC (lines of code) cannot be taken as a measure of the effort of the design. Justify the statement.
- (b) During the *code walkthrough* what kind of errors in a program are identified ?

P.T.O.

- (c) What is the McCabe's cyclomatic complexity metric ?
- (d) Why SRS (system requirement specification) is treated as a legal document in the process of designing information systems ?
- (e) What problems are likely to occur if a module has *low cohesion* ?
- (f) What do you mean by the term data dictionary in the context of structured analysis ?
- (g) What is the difference between the *Verification* and *Validation* ?
- (h) What do you mean by the *mutation testing* ?
- (i) Mention any two metrics to measure the *software reliability* ?
- (j) Give the name of any two CASE tools presently available in the market ?

2. (a) Draw a schematic diagram to represent the *spiral model* of software development and explain it. 2+4
- (b) Explain how the *iterative waterfall model* can be followed from it. 4
3. (a) What is the *feasibility study* during system development? Identify the major activities carried out during the feasibility study stage of a project. 2+4
- (b) Suppose you are the project manager of a large system development team and you have to make a choice between the *democratic* and *fully centralized team* organization. Which of the two options would you adopt for your team ? Justify your answer. 4
4. (a) Suppose an analyst has prepared the SRS document in the form of a narrative essay of the system to be developed. Based on this

document, the product development activity gets underway. Identify the problems that such a requirements specification document may create problems during development ? 4

- (b) A marketing company wishes to construct a decision table to decide how to treat clients according to three characteristics: Gender (M, F), City Dweller (Yes, No) and Age Group (A: under 30, B: between 30 and 40, C: over 40). The company has four products: W, X, Y and Z; the product W will appeal to female city dweller, the product X will appeal to young families, the product Y will appeal to male middle aged shoppers who do not live in city and the product Z will appeal all but older females.

Obtain the *decision table* for the above problem. 6

5. (a) What is the difference between *top-down* and *bottom-up* design approaches ? Explain whether the SA/SD technique use top-down or bottom-up approach? 2+3

- (b) Mention the important criteria based on which a design can be evaluated as a good design. 5

6. (a) What do you mean by the following in the context of testing software system ?

4×1½

- i. Test requirements
- ii. Test cases
- iii. Test oracles
- iv. Test driver.

- (b) Draw the difference between the *white-box testing* and *black-box testing*. 4

7. (a) What do you mean by the *quality of software* ? What are the major factors govern the quality of software ? 2+4

(b) What is the *Six Sigma* quality initiative ? To which category of industries does it apply ?

2+2

8. Write short notes on the following :

5×2

- i. COCOMO estimation
- ii. Gantt Chart
- iii. Data flow diagram (DFD)
- iv. CASE tool
- v. Unified design process.

IWL