

Total No. of Questions : 5] [Total No. of Printed Pages : 3

Roll No.

MCA-302(N)

M. C. A. (Third Semester) EXAMINATION, June, 2008

(New Course)

SOFTWARE ENGINEERING METHODOLOGIES

[MCA-302(N)]

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Do one question from each Unit. All questions carry equal marks.

Unit-I

1. (a) What is meant by a system ? Describe system hierarchies by a neat diagram. 2, 8
- (b) What is Feasibility ? How many types of feasibilities we do ? Describe each in detail. 2, 8

Or

- (a) What are different methods of information gathering ? Describe each in detail. 10
- (b) What are different form design methodologies ? Describe them. 10

Unit-II

2. (a) What are different steps of RAD software development process model ? When should you use

P. T. O.

this model ? What are its main advantages and disadvantages ? 5, 2, 3

- (b) Describe spiral model of software development. What will you get at end of each cycle of spiral ? What are its main advantages ? 5, 3, 2

Or

- (a) When will you use prototyping model of software development ? What activities are done in different iterations of this model ? 2, 8
- (b) Describe component based software development. What are main difficulties faced by developers of component based software ? What are its advantages ? 5, 3, 2

Unit—III

3. (a) Describe how a good design is influenced by the following : 10
- (i) Cohesion and coupling
 - (ii) Horizontal and Vertical partitioning
- (b) What are four P's of software project management ? What are main project planning objectives ? 5, 5

Or

- (a) Compute the function point value for a project with the following information : 6, 4
- (i) No. of user inputs 32
 - (ii) No. of user outputs 60
 - (iii) No. of user inquiries 24
 - (iv) No. of files 10
 - (v) No. of external interfaces 4
- Assume all complexity adjustment values are average. Assume that 14 algorithms have been counted. Compute feature point as well.

- (b) What is risk analysis ? What measures should you take to reduce the failure rate of a software ? 5, 5

Unit-IV

4. (a) What are McCall's product operation quality factors ? Describe each of them. 10
 (b) What are formal approaches to SQL ? Describe each in short. 10

Or

- (a) What is meant by software testing ? What is unit testing and unit testing procedures ? Describe. 10
 (b) What is verification and what is validation ? Explain with suitable examples. Do we need both these tests ? 5, 5

Unit-V

5. (a) Differentiate between MIS and DSS. 10
 (b) Define the terms : 5
 (i) Data objects
 (ii) Data-attributes
 (c) What is an object diagram ? 5

Or

Write short notes on any *three* of the following : 20

- (i) CASE tool
 (ii) Software reusability
 (iii) LIA in context of OOA
 (iv) Integration testing
 (v) Need of DSS

Total No. of Questions : 10] [Total No. of Printed Pages : 3

MCA-302(N)

M. C. A. (Third Semester)
EXAMINATION, Nov.-Dec., 2007

(New Course)

SOFTWARE ENGINEERING

[MCA-302 (N)]

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : There are five Units in paper. Attempt one question from each Unit.

Unit-I

1. (a) Explain System. What are the characteristics of system ?
Explain the role of System Analyst. 10
- (b) Explain various information gathering tools. 10
2. (a) Explain in detail System Development Life Cycle. 10
- (b) Explain the process of design and various design methodologies. 10

Unit-II

3. (a) What do you mean by the term software engineering ?
Describe the evolving role of software. What are its attributes ? 10
- (b) Explain the types of situations where iterative enhancement model might lead to difficulties.

P. T. O.

Compare iterative enhancement model and evolutionary development model. 10

4. (a) Differentiate between program and software. Why documents and documentation have become important ? Explain software characteristics. 10
- (b) Compare waterfall model and the spiral model. How does project risk factor affect the spiral model of software development ? 10

Unit—III

5. (a) What is risk ? Is it economical to do risk management ? What is its effect on overall cost of the project ? 10
- (b) Suppose we are faced with developing a system that we expect to have 100,000 lines of code. Compute effort and development time for each of the three development mode. 10

Software Project	a_b	b_b	c_b	d_b
Organic	2.4	1.05	2.5	0.38
Semidetached	3.0	1.12	2.5	0.35
embedded	3.6	1.20	2.5	0.32

6. (a) What is Design ? Discuss the objectives of software design-differentiate between conceptual design and technical design. 10
- (b) What is the difference between flowchart and structure chart ? Explain the strategy of design. Also explain top-down and bottom up design. 10

Unit—IV

7. (a) Explain Black Box testing. What are the various methods of Black Box testing ? 10

- (b) Explain the terms quality, quality control, quality assurance and cost of quality. 10
8. (a) Explain decision table based testing. Write a procedure to find maximum of three numbers and develop decision table for this procedure. 10
- (b) Explain Debugging techniques and the approaches induction approach and deduction approach. 10

Unit - V

9. (a) Explain "Designing an MIS for an organization is an art and not a science" and "MIS supports manager in his functional responsibilities". 10
- (b) Explain how is organization a system where inputs are processed to get a desired output. 10
10. (a) Explain Planning. What are the dimensions of planning ? 10
- (b) Differentiate between the following : 10
- (i) Data and Information
 - (ii) Data processing and Information processing
 - (iii) MIS and Computer system

Total No. of Questions : 10] [Total No. of Printed Pages : 3

MCA-302(N)

M. C. A. (Third Semester) EXAMINATION, June, 2007

(New Scheme)

SOFTWARE ENGINEERING METHODOLOGY

[MCA-302(N)]

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *one* question from each Unit.

Unit - I

1. (a) What is the role of a system analyst in the software development process ? 5
- (b) What are the parameters of measuring quality of software ? 5
- (c) Discuss the system life cycle model in detail. 10
2. (a) What is feasibility analysis ? Discuss in brief about various types of feasibilities. 5
- (b) Discuss about form design methodology. 5
- (c) What is a system ? Discuss about the following : 10
 - (i) Characteristics of a system
 - (ii) Elements of a system

P. T. O.

Unit – II

3. (a) Discuss the prototyping model of software development. 10
(b) Why is the study of software engineering important for software developers ? Explain. 10
4. (a) Discuss the RAD model of software development. 10
(b) Discuss detailed study of size-oriented matrix. 10

Unit – III

5. (a) What are the concept of the following
(i) cohesion
(ii) coupling
What is their impact on the software design process ? 10
- (b) Discuss about the following decomposition techniques :
(i) LOC and FP estimation
(ii) Effort Estimation 10
6. (a) Discuss about the following empirical models : 10
(i) COCOMO
(ii) Putnam Estimation Model
- (b) What is risk analysis ? Discuss about the following ? 10
(i) risk identification
(ii) risk projection
(iii) risk assessment
(iv) risk management

Unit – IV

7. (a) Discuss about the following quality matrices : 10
(i) Software quality indices
(ii) McCabe's complexity matrix

(b) Discuss about integration testing in detail. 10

8. (a) (i) Discuss about the measures of software reliability and availability, hence discuss the following terms : 5

(1) MTTF

(2) MTTR

(3) MTBF

(ii) Can software be correct and still not reliable ? Justify your answer. 5

(b) Discuss about validation testing in detail. 10

Unit—V

9. (a) What is MIS ? Discuss about application of MIS in service sector. 10

(b) What is DSS ? Discuss various types of DSS in detail. 10

10. (a) Should measured productivity be used by managers during the staff appraisal process ? What safeguards are necessary to ensure that quality is not affected by this approach ? 10

(b) What is CASE ? Describe in detail. Discuss the role of case in the following : 10

(i) Project management

(ii) Documentation