Total No. of Questions : 8] [Total No. of Printed Pages : 2

MCA–401(O)

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

(Old Course)

SOFTWARE ENGINEERING

[MCA—401(O)]

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) What is the aim of Software Engineering ? Distinguish between program and software product. Explain the statement "software does'nt wear-out". 10

   (b) What do you understand by the term life cycle model of software development ? 10

2. (a) Explain various empirical estimation techniques. 10

   (b) List important shortcomings of the LOC as a software size metric.
   Suppose you are developing a software product in organic mode. You have estimated the size of produt to be about 150,000 LOC. Compute nominal effort and development time. 5, 5

3. (a) Discuss the significance of using prototyping for reusable components and explain the problems which may arise in this situation.

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(b) Explain software requirement specifications (SRS). What are the characteristics of good SRS ?

4. (a) Discuss the objectives of modular software design. What are the effects of module coupling and cohesion ?

(b) Explain various strategies of design. Which design strategy is most popular and practical ?

5. (a) Explain alpha testing, beta testing. What are test plan and test cases ? Illustrate by example.

(b) What are the various categories of maintenance ? Which category consumes maximum time and why ?

6. (a) Explain CASE tools. What are various categories of CASE tools ? What are its advantages ?

(b) Differentiate between the following :

(i) black box and white box testing

(ii) software verification and validation

7. (a) What is meant by system testing ? What are the different kinds of testing that are usually performed on large software products ?

(b) Compare the relative advantages of using waterfall model and spiral model of software development.

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

(i) Risk Management

(ii) Software Engineering

(iii) Quality assurance

(iv) Object oriented design

(v) Software Maintenance

(vi) Evolutionary Models

Total No. of Questions : 8] [Total No. of Printed Pages : 3

MCA–401

M. C. A. (Fourth Semester) EXAMINATION, June, 2005

SOFTWARE ENGINEERING

(MCA–401)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) What do you understand by term life cycle model of software development ? Describe generic water fall model. 10

   (b) Describe the prototype model. What is the effect of designing a prototype on overall cost of software project ? What are the advantages of first developing the prototype of system ? 10

2. (a) Suppose that you are developing a software product in the organic mode, estimated size of product is 10000 lines of code. Compute the nominal effort and the development time. 7

   (b) Explain various empirical estimation techniques. 8

   (c) Discuss typical software risks. 5

3. (a) A program is to be developed to simulate the operations of a scientific calculation. List the facilities

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to be provided by this calculator. Analyse this using DFD. 10

(b) Describe *two* most popular prototying approaches. 6

(c) Differentiate between verification and validation. 4

4. (a) Explain and illustrate the key elements of structure chart. 6

(b) What is structured design ? How is it related to DFD ? 6

(c) Distinguish between the following : 8

(i) Logical and Physical design

(ii) Coupling and Cohesion

(iii) HIPO and IPO

5. (a) How would one conduct on site observation ? What are the pros and cons of this ? 7

(b) What are traditional information gathering tools ? Explain each tool. 7

(c) Differentiate between the following : 6

(i) Open ended and closed questions

(ii) Structured and unstructured interviewing

6. (a) Design black box test suites for a function that checks whether a character string upto 10 characters is a palindrome. 8

(b) How is cyclomatic complexity useful in program testing ? 6

(c) What do you understand by system testing ? What are the different kinds of system testing that are usually performed on large software products ? 6

7. (a) Why is highly coupled module difficult to unit test ? 6

(b) How can project scheduling affect integration testing ? 6

(c) Explain the overall strategy for software testing. 8

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

(i) Software Reengineering

(ii) Goods of Software engineering

(iii) Ray light Curve

(iv) Art of debugging

(v) Software configuration management

(vi) Quality metrics

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MCA—401

M. C. A. (Fourth Semester) EXAMINATION, Dec., 2005

SOFTWARE ENGINEERING

(MCA—401)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Discuss software engineering as layered technology. 10

   (b) Discuss spiral model ? What are its advantages and how to justify it ? 10

2. (a) Software requirement specifications include what details ? Present an outline. 7

   (b) What do you understand by object oriented modelling ? 7

   (c) Explain salient features between project and process metries. 6

3. (a) Compute the function point value for a project with the following information : 10

   (i) Number of user inputs = 35

   (ii) Number of user outputs = 24

   (iii) Number of files = 10

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(iv) Number of queries = 30

(v) Number of external interfaces = 2

Assume all complexity adjustment values are average. Assume 14 algorithms have been counted. Compute the feature point under the same conditions.

(b) What do you understand by Rayleigh curve ? 5

(c) Discus various software team structures. 5

4. (a) How the concepts of coupling and software portability are related ? Explain. 5

(b) What do you understand by Transaction mapping of DFD to software structure ? 10

(c) Present a Design specification outline. 5

5. (a) What kinds of performance tests might be required for a payroll system ? 5

(b) How is flow graph prepared for a given logic and how cyclomatic complexity is computed ? Explain through suitable example. 10

(c) Discuss 'Condition Testing'. 5

6. (a) Differentiate between the following : 12

(i) Driver and Stub

(ii) Regression testing and Stress testing

(iii) Verification and Validation

(b) Briefly discuss any *two* of the following : 8

(i) Code restructuring

(ii) Data restructuring

(iii) Reverse engineering

7. (a) Write a detailed note on CASE tools. 10

(b) What are the advantages of Clinent/Server systems ? Discuss their testing issues. 10

8. Write short notes on any *four* of the following : 20

(a) CMM

(b) Software configuration management

(c) Standardisation of software processes and its advantages

(d) Project scheduling

(e) Software reuse

(f) Quality metrics

Total No. of Questions : 8] [Total No. of Printed Pages : 3

MCA–401

M. C. A. (Fourth Semester) EXAMINATION, Dec., 2004

SOFTWARE ENGINEERING

(MCA—401)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Why Software Engineering is needed ? What do you understand by System Engineering ? 10

   (b) What are the characteristics of a software process ? How software process model are chosen for developing a project ? 10

2. (a) What specification languages can be used in SRS ? What are the advantages of using these specific languages for SRS ? 10

   (b) Discuss the structure of 'SRS Document'. How requirements can be validated ? 10

3. (a) Software project planning entails what activities ? What are the difficulties faced in measuring the software costs ? 8

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