

Printed Pages—3

MCA513

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2145

Roll No.

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M.C.A.

(SEM. V) THEORY EXAMINATION 2011-12

SOFTWARE ENGINEERING

Time : 3 Hours

Total Marks : 100

Note :- (1) Attempt all questions.

(2) All questions carry equal marks.

1. Attempt any two of the following : (10×2=20)

(a) (i) What do you mean by term 'Software Engineering' ?

Discuss it.

(ii) What are the responsibilities and challenges of Software Engineers ?

(b) Explain the waterfall process model. Discuss the different phases of it.

(c) (i) Discuss the prototype model. Under what circumstances it is beneficial to develop a prototype model ?

(ii) Discuss the characteristics of software contrasting it with the hardware.

2. Attempt any two of the following : (10×2=20)

(a) Draw a overall DFD for Issue/Return of a books in a Library. Clearly describe the working of the system and mention all assumptions made by you.

(b) (i) Discuss the organisation of a software requirements specification.

(ii) Why is SRS document also known as the black-box specification of a system ?

(c) Discuss the following :

(i) Entity Relationship Diagrams

(ii) Software Quality Attributes.

3. Attempt any two of the following : (10×2=20)

(a) Discuss the concepts of the cohesion and coupling of software design and also explain the different types of coupling and cohesion.

(b) What do you mean by a good software design ? Also discuss the criteria for a software design to enhance the quality of a software.

(c) Discuss the following with suitable examples :

(i) Object oriented design

(ii) Halestead's Software Science.

4. Answer any **two** of the following : **(10×2=20)**

- (a) (i) What are the objectives of software testing ? Discuss.
- (ii) Distinguish between the verification and validation testing with examples.
- (b) (i) How is cyclomatic complexity useful in program testing ? Discuss.
- (ii) What do you understand by the term integration testing ? Discuss the importance of integration testing.
- (c) Briefly discuss the following :
  - (i) Code inspection and Code walk-through
  - (ii) Black Box Testing.

5. Attempt any **two** of the following : **(10×2=20)**

- (a) (i) What are the activities involved in reengineering of the software ? Discuss.
- (ii) What do you mean by software maintenance ? Why does the software need maintenance ?
- (b) What do you mean by software risk ? Discuss the risk management activities during the software development.
- (c) Write notes on Constructive Cost Models (COCOMO).