SOFTWARE ENGINEERING (SEMESTER - 8)

CS/B.TECH(ECE-OLD)/SEM-8/EC-804D/09

1. .....
Signature of Invigilator

2. .....
Signature of the Officer-in-Charge

Reg. No. | | | | | | | | | | | | | | |

Roll No. of the Candidate | | | | | | | | | | | | | | |

CS/B.TECH(ECE-OLD)/SEM-8/EC-804D/09

ENGINEERING & MANAGEMENT EXAMINATIONS, APRIL – 2009

SOFTWARE ENGINEERING (SEMESTER - 8)

Time : 3 Hours] [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.
   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

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Marks Obtained

	Group – A										Group – B			Group – C				
Question Number																	***Total Marks***	***Examiner's Signature***
Marks Obtained																		

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Head-Examiner/Co-Ordinator/Scrutineer

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GROUP – A

(Multiple Choice Type Questions)

1. A) Choose the correct alternative for any *five* of the following : 5 × 1 = 5

i) During software development, which factor is most crucial ?

a) People b) Product

c) Process d) Project. ☐

ii) Effort is measured in terms of

a) Person-month b) Persons

c) Rupees d) Months. ☐

iii) UML stands for

a) Uniform Modelling Language

b) Unified Modelling Language

c) Universal Modelling Language

d) None of these. ☐

iv) If project is the enhancement of existing system, which model is best suited ?

a) Prototyping b) Spiral

c) Iterative enhancement d) Waterfall. ☐

v) Which is not a size measure for software ?

a) LOC b) Function Count

c) Cyclomatic complexity d) Halstead's Program Length. ☐

vi) In COCOMO, if project size is 2-50 KLOC, then which mode is to be selected ?

a) Organic b) Embedded

c) Semidetached d) None of these. ☐

vii) MTBF stands for

a) Maximum Time Between Failures

b) Minimum Time Between Failures

c) Mean Time Between Failures

d) Many Time Between Failures. ☐

B) State whether the following statements are *True* / *False* in the box provided.

5 × 1 = 5

i) Software development organisation which follows the iterative waterfall model for product development, provides maximum customer satisfaction.

a) True b) False. ☐

ii) A formal specification cannot be incomplete.

a) True b) False. ☐

iii) Software verification and validation are synonymous.

a) True b) False. ☐

iv) During code review, you detect errors, whereas during code testing your detect failures.

a) True b) False. ☐

v) System testing can be considered as a white box testing.

a) True b) False. ☐

GROUP – B
(Short Answer Type Questions)

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

2. Why is spiral model called meta model ? 5

3. What is a Data Flow Diagram ? What are the shortcomings of the DFD model ? 2 + 3

4. a) What is Cyclomatic Complexity ? 2

   b) What are the differences between Alpha Testing and Beta Testing ? 3

5. Why do we try to minimize coupling and maximize cohesion ? 5

6. Discuss five reliability metrics that can quantify the reliability of software products. 5

GROUP – C

(Long Answer Type Questions)

Answer any *three* questions. 3 × 15 = 45

7. a) What is a decision table ? What are its advantages ? 1 + 2

   b) Draw a decision tree and decision table for the following problem :

   The discount policy has following conditions for the customers.

   If customer is 'book stores' — Get a trade discount of 25% if orders for 6 or more copies per book title.

   If customer is 'library or individual' — 5% allowed on order of 6 – 19 copies per book title, 10% on orders for 20 — 49 copies per book title and 15% on orders for 50 copies or more per book title. 12

8. a) How many types of project are present according to COCOMO ? Give an example of each. 3 + 3

   b) How do you manage software configuration ? 4

   c) Assume that the size of an organic type of software product has been estimated to be 32,000 lines of source code. Assume that the average salary of software engineers is Rs. 18,000 per month. Determine the effort required to develop the software product, total cost and the nominal development time. 5

9. a) Briefly describe different phases of classical waterfall model with diagram. What are the limitations of waterfall model ? 7 + 3

   b) What are structure charts ? Discuss their components. 5

10. a) Define 'Software Quality' and 'Software Reliability'. 2 + 2

    b) What are the different costs associated with software quality ? 2

    c) What is ISO 9000 standard ? Why does software industry require this certification ? 1 + 2

d) Briefly discuss the different stages of 'Capability Maturity Model'. What is 'Six Sigma' ? 5 + 1

11. a) What do you mean by the terms 'cohesion' and 'Coupling' in the context of software design ? How are these concepts useful in arriving at a good design of a system ? 6

b) What, according to you, is a good software design ? 3

c) What do you understand by the term 'functional independence' in the context of software design ? What is the advantage of functional independence ? 6

END