

Software Engineering (315323)

MSBTE Diploma · K-Scheme · Model Question Paper — Set A

Time: 3 Hours**Max. Marks: 70****Instructions:**

1. All questions are compulsory.
2. Answer each next main question on a new page.
3. Illustrate your answers with neat sketches wherever necessary.
4. Figures to the right indicate full marks.
5. Assume suitable data, if necessary.
6. Mobile phone, pager and any other electronic communication devices are not permissible in the examination hall.

Q.1 Attempt any FIVE of the following:**10**

- a) Define software engineering.
- b) State any four attributes of a good software.
- c) State any two principles of software deployment.
- d) Define the following design concepts: i) Abstraction ii) Information hiding
- e) Define risk. State any two types of software risks.
- f) State any two uses of Gantt chart.
- g) Define Software Quality Assurance (SQA). List any two goals of SQA.

Q.2 Attempt any THREE of the following:**12**

- a) Describe the spiral model with a neat labelled diagram.
- b) Explain the elements of analysis model with a neat diagram.
- c) Explain any four core principles of software engineering.
- d) A system has 24 external inputs, 16 external outputs, 22 external inquiries, 4 internal logical files and 2 external interface files, all of average complexity. The sum of the 14 value adjustment factors (ΣF_i) is 42. Compute the function points.

Q.3 Attempt any THREE of the following:**12**

- a) Describe any four principles of communication practice.
- b) Draw a use case diagram for an Online Shopping System with at least two actors and four use cases.
- c) Compare black box testing and white box testing. (Any four points)
- d) A shop gives discount as follows: (i) a member customer with bill amount above ₹ 5000 gets 15 % discount; (ii) a member customer with bill amount ₹ 5000 or less gets 10 % discount; (iii) a non-member with bill amount above ₹

5000 gets 5 % discount; (iv) a non-member with bill amount ₹ 5000 or less gets no discount. Draw a decision table for the above rules.

Q.4 Attempt any THREE of the following:

12

- Explain the Scrum agile process model with a neat diagram.
- Explain the management spectrum (4 P's) in software project management.
- Explain any four basic principles of project scheduling.
- Explain CMMI maturity levels with a neat diagram.
- Explain any four requirement elicitation techniques.

Q.5 Attempt any TWO of the following:

12

- With a neat diagram, describe the Waterfall model with all its phases. State its advantages and disadvantages.
- Draw context level (Level 0) and Level 1 DFD for a Hospital Management System.
- For the project activities given below, draw the network diagram, find the critical path and the project duration.

Activity	1-2	1-3	2-4	3-4	2-5	4-5	4-6	5-6
Duration (days)	4	6	5	2	7	3	6	4

Q.6 Attempt any TWO of the following:

12

- Define SRS. Describe the format of SRS (IEEE) and state any four characteristics of a good SRS.
- A software project is estimated to be 250 KLOC. Using basic COCOMO, calculate the effort and development time for organic, semi-detached and embedded modes.
- Describe the steps involved in risk analysis and management. Prepare a risk information (RMMM) sheet for one risk.

Note: This is a **model question paper prepared by Ananda Technologies** only for practice and exam preparation, based on the pattern of previous MSBTE question papers and the K-scheme syllabus. It is **not an official MSBTE paper**, and it does **not** mean that these questions will come in the exam. Answers follow standard textbook points; marks shown are indicative. Free for students — anandatechnologies.in