# MCA
## (SEM. IV) MODEL PAPER
## KCA – 035 : SOFTWARE QUALITY ENGINEERING

*Time : 3 Hours* *Total Marks : 70*

**Note :** Attempt all Sections. If require any missing data; then choose suitably.

### SECTION – A

**1. Attempt *all* questions in brief.** **(2 x 7 = 14)**

(a) Define software quality.
(b) What are the defects, faults and failures?
(c) Discuss the importance of quality in Software Development.
(d) Define Reliability of Software.
(e) What is Software Quality Assurance?
(f) Define Verification and Validation.
(g) Enlist the types of Software Testing.

### SECTION – B

**2. Attempt any *three* of the following:** **(7 x 3 = 21)**

(a) What is software quality? What are the different types of software quality? Also state importance of software quality.
(b) What is defect density in software quality? How to calculate defect density? Explain with suitable example.
(c) Explain Software Reliability Allocation Models.
(d) What is the Software Quality Assurance? Why Software Quality Assurance is important?
(e) Explain the Evolutionary model with suitable diagram. Also explain advantages and disadvantages of the evolutionary model.

### SECTION – C

**3. Attempt any *one* part of the following:** **(7 x 1 = 7)**

(a) Explain Errors, Defects, Faults, and Failures in Software Engineering?
(b) Explain function points in detail. Also state objectives, advantages and disadvantages of FP.

**4. Attempt any *one* part of the following:** **(7 x 1 = 7)**

(a) What are the different types of Software Review?
(b) Explain Customer Problem metric in detail. How it is related with Customer Satisfaction Metrics?

**5. Attempt any *one* part of the following:** **(7 x 1 = 7)**

(a) Explain Quality Improvement Process in detail.
(b) Explain functional testing in detail.

6. **Attempt any *one* part of the following:** **(7 x 1 = 7)**

(a) Explain Hierarchical Model of Software Quality Assessment.

(b) What are the different Software Quality Indicators?

7. **Attempt any *one* part of the following:** **(7 x 1 = 7)**

(a) What do you mean by Total Quality Management (TQA)? What are the important Principles of Total Quality Management?

(b) What are the different testing tools? Explain each tool briefly.

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# MCA

## (SEM. IV) THEORY EXAMINATION, 2021–22

## KCA-035 : SOFTWARE QUALITY ENGINEERING

Time : Three Hours

Maximum Marks : 100

**Note** : Attempt all Sections. If you require any missing data, then choose suitably.

### SECTION – A

1. **Attempt *all* questions in brief.** **(2 ×10 = 20)**
   (a) Explain the term Software Quality.
   (b) Explain the different types of software review.
   (c) Define the term Quality Assurance.
   (d) Explain function points.
   (e) What do you understand by software measurement?
   (f) Discuss hierarchical model of quality?
   (g) Write a short note on origins of defects.
   (h) What is Benchmarking?
   (i) Differentiate between Fix – quality and Software quality.
   (j) What are the requirements of customer problem metrics?

### SECTION – B

2. **Attempt *any three* of the following :** **(3 ×10 = 30)**
   (a) Explain the following terms :
      (i) Fault
      (ii) Failure
      (iii) Defects rate
      (iv) Defect preventions
   (b) What is Net Satisfaction Index (NSI)? Describe with example.
   (c) Why quality estimation is required? How one can use this tool to estimate the cost of the project?
   (d) Define Verification and Validation activities associated with V – Model.
   (e) What are various CASE tools? Explain advantages of CASE tools.

### SECTION – C

3. **Attempt *any one* part of the following :** **(1 × 10 = 10)**
   (a) Discuss the various quality planning goal and quality plan benefits.
   (b) Software reliability is important issue of measuring quality comment?

4. **Attempt *any one* part of the following :** **(1 × 10 = 10)**
   (a) Explain with proper graph delayed S and inflection S models?
   (b) How to measure customer satisfaction metrics? Explain with example.

5. **Attempt *any one* part of the following :** **(1 × 10 = 10)**
   (a) Discuss the Rayleigh model of software quality management?
   (b) Explain Pre-QA activities, in-QA activities and Post-QA activities in detail.

6. **Attempt *any one* part of the following :** **(1 × 10 = 10)**
   (a) Explain Six Sigma concept in detail with suitable example.
   (b) Explain Boehm's quality model and its characteristics.

7. **Attempt *any one* part of the following :** **(1 × 10 = 10)**
   (a) Is it possible to assess the quality of software if the customer keeps changing? What it is supposed to do?
   (b) Explain the testing tools. Describe the characteristics of modern testing tools.

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