EASWARI ENGINEERING COLLEGE

DEPARTMENT OF INFORMATION TECHNOLOGY

QUESTION BANK

Degree/Branch: M.E/Software Engineering Year/Semester: I/II

Subject code/Title: SE7203/Software Metrics and Quality Assurance

UNIT-I

2 Marks:

1. What is Measurement?
2. Define Attribute with example.
3. Define Entity with Example.
4. Define objective of software measurement?
5. What are all activities of software metrics?
6. List the 3 principles of goal based Framework?
7. Name the classes of software measures?
8. Mention the types of measurement errors.
9. Distinguish between internal attributes & external attributes.
10. How do you derive the metrics from goals and objectives?
11. Define GQM Paradigm?
12. What are all templates for goal definition?
13. Draw the SEI levels of process maturity.
14. What is software measurement validation?
15. Name the types of measuring system in software validation.
16. Mention the levels of measurement in software metrics.
17. How do you find out the Defect rate inside the project?
18. What are all the basic measures of software?
19. Differentiate the Reliability & Validity used in system?
20. List the name of measurement errors?
21. What is Empirical Investigation?
22. List the four principles of Empirical Investigation.
23. Mention the Techniques of Empirical Investigation.
24. Write the procedural steps to carrying out the Formal Experiments.
25. Define Randomization.

26.What do you mean by local control?
27.What is good data?
28.Draw the role of data collection in diagram.
29.Write down the classification of fault types.
30.Draw the general DB Structure.
31.List the Statistical techniques for Analysis data.
32.What do you mean by multivariate data analysis?
33.Define MAUT the term.

16Marks:

1. Explain the overview of software metrics.
2. Describe in detail about software measurement validation technique.
3. Enumerate and explain the fundamentals of measurement theory.
4. Explain briefly about scope of software metrics.
5. Explain: Fundamentals of software measurement with example.
6. Explain what all procedure for performing Experiments is.
7. Describe the principles & types of experimental design.
8. Describe how to define & how to collect data?
9. Explain in detail about analytical technique.
10. Describe in detail about the different methods of statistical analysis.

Unit II

2 Marks

1. Mention the attributes of software size.
2. How do you calculate the length of code?
3. What do you mean by LOC?
4. What do you mean by function point count?
5. Define COCOMO model.
6. How do you measure the efficiency of algorithm?
7. Define big-O notation.
8. List the types of structural measure.
9. Draw a flow graph with Example.
10. What do you mean by coupling and cohesion?
11. Mention the classification of coupling and cohesion.
12. How to calculate the flow complexity?

13. Draw the Boehm software quality model.
14. Draw the McCall software quality model.
15. Define defect density.
16. Name the classification of software metrics.
17. What are all the two levels of software metrics?
18. Define the term LOC.
19. Expand LOC, PUM, NSI, and KLOC?
20. Mention the scopes of 3 quality metrics.
21. How to describe BMI?
22. Give any two examples for metrics program.
23. What are all the metrics for software components?
24. What is the objective of Motorola Company?
25. Expand the terms PCE, FR, IPF, and IPD?
26. Differentiate low level and high level design.
27. What is Fix backlog and Backlog management index?
28. What is the R/P between CSI count & SSI count?
29. What do you mean by VAF?
30. How do you calculate DRE?

16 Marks:

1. Describe Product Quality metrics.
2. Explain in detail.
    a) Process quality metrics.
    b) Product quality metrics.
3. Explain briefly about metrics for software maintenance.
4. Explain anyone of the examples of metrics program.
5. Explain the methods for functionality of software product.
6. Describe the methods to calculate the complexity of software product.
7. Describe the types of structural measures.
8. Explain how to measure external product attributes.
9. Explain about cyclometric complexity with your own example.
10. Explain briefly about Rayleigh model.
11. Give detail note on Reliability growth model.
12. Describe what are all the criteria for model evaluation?
13. Explain about Orthogonal defect classification.
14. Write a note on SRE tools.

Unit III

2 Marks

1. Define quality.
2. What is quality cost?
3. What are the building blocks of total quality management?
4. What are the 7 QC tools?
5. What is business process reengineering?
6. Define Quality Function Deployment.
7. Define six sigma.
8. What are the uses of arrow diagram?
9. What are the different dimensions of quality?
10. What is external failure?
11. What are the uses of control charts?.
12. Steps involved in the bench marking process.
13. What is statistical process control?
14. Define TQM.
15. What is quality planning?
16. What is quality improvement?
17. What is quality management?
18. What are the benefits of QFD?
19. What is internal benchmarking>?
20. What are the four p's focused on effective software project management?
21. Define software configuration management.
22. What are CASE tools?
23. What are function-oriented metrics?
24. Define white box testing?
25. What are the steps implied by statistical quality assurance?
26. Define Verification and Validation.
27. What is RMM plan?
28. What are the qualities team leaders should posses?
29. What is an agile team?
30. What are the categories of activities connected with measurement process?
31. What are the different measurable characteristics of an OO design?
32. What are the measures of software quality?
33. What is metrics evaluation?
34. What is software quality assurance?

35. What is SQA group?
36. What are the activities associated with SQA group?
37. What are the different SCM features?
38. What are reactive risk strategies?
39. What are the characteristics of software risks?
40. What is software availability?

16 Marks:

1. Explain Quality Function Deployment in detail.
2. Describe in detail the standardization procedure of benchmarking.
3. Explain how software quality assurance is ensured in a software firm.
4. Explain the seven basic quality control tools in detail.
5. Explain software project management in detail.
6. Explain how software quality assurance is ensured in a software firm

UNIT 4

2 Marks

1. What are the management responsibilities regarding ISO 9001 requirements?
2. Define SPICE.
3. What is MALCOLM BALDRGE award?
4. What are the ISO 9000 series of quality management standards?
5. What are the capability levels defined in SPICE?
6. What are the components of the ISO 9000 series to which SPICE is related?
7. What is and assessment instrument?
8. What are the goals of SPICE project?
9. What are the benefits that an international standard will provide to industry?
10. What are the benefits of ISO 9000 verification?
11. What are the events associated with quality management?
12. What are the documents required to implement quality management system in an organization?
13. What are the pre-requisites for employees?
14. What are the requirements of internal auditing?

15. What are the different organizations to which the Malcolm Balridge award is given?
16. What are the different process maturity levels?
17. Who are the steps organizations has to take to improve their software capabilities??
18. What are the requirements of ISO 9001: 2000 standard?
19. What are the different principles of software assessment?
20. Who are the different inspection participants?
21. Define software engineering process.
22. Define software process architecture.
23. Define software process model.
24. Define software process.
25. What are the critical software process issues?
26. What are the different process model views?
27. What are the drawbacks of water fall model?
28. What are the different levels of software process models?
29. What are the different types of software tests?
30. Define testing.
31. Define debugging.
32. What are integration tests?
33. What are regression tests?
34. What are installation tests?
35. What are the major test plan elements?
36. What should be the qualities of assessment team members?
37. What are the different risks associated with a software process?
38. What are the basic objectives of inspections?
39. Why defect prevention is crucial to the software process?
40. What are the principles of software defect prevention?
41. What are the different steps of software defect prevention?
42. What are the different errors for which defect prevention analysis is required?

16 Marks

1. Discuss in detail about the needs for standards (16)
2. Explain the ISO9000 series standard (16)
3. Explain the ISO9000-3 standard for software development. (16)
4. Explain in detail the CMM Model (16)

5. Explain the CMMI Model (16)
6. Explain the Six Sigma Concepts. (16)

UNIT 5

2 Marks

1. What are the different ways in which CMMI represents a process meta model?
2. What is PSP?
3. What are the different framework activities defined by PSP model?
4. What is postmortem in PSP?
5. What are the objectives of TSP?
6. What are the framework activities defined by TSP? What is clean room software engineering?. What are the tasks associated with clean room strategy?
7. What is the different box used in clean room software engineering?
8. . What is state box?
9. What are the different models require for clean room software engineering Certification?
10. What is object – oriented systems development methodology?
11. What are the reasons for the necessity of object – orientation?
12. What is UML?
13. What are the different diagrams defined in UML?
14. What is classification?

16 Marks:

1. Account on CMM in detail.
2. Give a detail note on SPICE in detail.
3. Write detailed notes on Malcolm Baldrige award.
4. Explain how software process assessment helps software organizations to improve themselves.
5. Explain the testing phase of software development in detail.
6. Give detailed description about software process assessment.
7. Explain software inspections in detail.
8. Explain OO methodology in detail.
9. Write detailed notes on the techniques for error cause analysis and defect prevention.

10.Account on clean-room software engineering.
11.Explain in detail about notes on TSP and PSP.