

BE IT 4th Year 2nd Semester Examination, 2017 (Old)

SOFTWARE QUALITY MANAGEMENT

TIME : 3 Hours

FULL MARKS : 100

Answer Any FIVE Questions

1.a) Give a Historic Perspective about how concept of Quality got evolved from 1900 till today.

b) Explain W5HH Principles.

c) Explain the organization of a typical Project Plan. (10+5+5)

2.a) List down and explain the factors which influence Software Cost Estimation Task.

b) In an attempt to estimate the person month required for a moderately large software project, it was found that total lines of code for the said project will stay around 300,000 lines. What will be the person-months required to finish this project? Use relevant formulae from both COCOMO-I and COCOMO-II model to compute the person-month. If the answers turn out to be different for the above two models then please explain why it is so. As for the project and process factors values are concerned, one can safely assume them to be around the value of 1.

c) Study the Task List Table shown below.

Task	Duration (in days)	Dependencies	Milestone	Doc Due	Skill Set Required
T1	8				Project Mgmt
T2	3	T2			C/C++
T3	6	T1	M1	D1	JAVA
T4	3	T1, T3	M2	D2,D3	C/C++
T5	6	T2			JAVA
T6	7	T5	M3	D4,D5	Testing
T7	7	T3, T6			Testing

Draw the Task Network (consider 5-day work week) for the above Task List Table, identify the Critical Path and compute the minimum time required to finish the project.

(6+6+8)

3.a) With proper example, explain the activities performed in Risk Analysis Phase.

b) Devise a "Risk Avoidance Strategy", "Risk Minimization Strategy" and "Contingency Plan" for the risk "Staff Turnover".

c) List down the activities performed during the SCM(Software Configuration Management) Process. Briefly describe the Change Management Process.

d) With proper diagram, explain the system building process. (5+5+(2+4)+4)

4.a) Management has decided to improve the quality of the software using the SQA method. To achieve this, several quality initiatives has been identified. One of them is 'Sub-Contracting'. It has been decided that, one SQA personnel will be put to take care of this initiative. Describe what will be his activities if he has to fulfill his responsibilities.

b) List down the guidelines for choosing relevant metrics for the "Management Through Metrics" program. Also, list down at least 4 example metrics which will be suitable for the "Management Through Metrics" program.

c) Explain the key factors which influence the effectiveness of group communications. (7+(5+2)+6)

5.a) List down and explain 8 Process Attributes. Why the attribute 'Rapidly' and 'Visibility' cannot be improved at the same time.

b) With proper diagram, explain the relationship among ISO 9001, ISO 9002, ISO 9003.

c) Briefly outline the history of ISO9000.

d) List down at least 8 Elements of ISO 9000 Standard. ((6+2)+4+4+4)

6.a) Explain SW-CMM (Software Capability Maturity Model).

b) Explain PCMM (People Capability Maturity Model).

c) There are altogether 10 KPA's (Key Process Area) listed below. Please specify which one belongs to the SW-CMM and which one belongs to the P-CMM. Also specify which level they belong to.

- i) Mentoring
- ii) Defect Prevention
- iii) Training & Development
- iv) Software Project Tracking
- v) Competency Development
- vi) Technology Change Management
- vii) Quantitative Process Management
- viii) Organization Performance Alignment
- ix) Software Quality Assurance
- x) Career Development

(5+5+10)