BE Part IV 7th Semester Final Examination, 2007
Subject: Software Engineering
CST 702
Computer Science and Technology Department
Bengal Engineering and Science University, Shibpur
Time: 3 hours   Full Marks: 100

Use separate answer sheet for each half.
Each question carries equal marks.
2 marks in each half for neat and brief answer.

FIRST HALF
Answer either Q1 or Q6 and any two from Q2 to Q5 from first half.

Q1.   a) Define 'Software Engineering' and justify the term 'Engineering'.
       b) What is 'Software Crisis'? What are the symptoms and lessons of 'Software
          Crisis'?
       c) How the quality of software is viewed by three judges? Briefly explain. [16]

Q2.   a) Explain the importance of life cycle model in Software Engineering.
          Name various life cycle models used in Software Engineering.
       b) Briefly explain with diagram "Rapid Prototype" model and mention its strength,
          weakness and applicability.   [16]

Q3.   a) Briefly write on different types of COCOMO models available for software
          cost estimation; and also justify the term 'estimation'.
       b) Determine how effort and duration of a project is determined in intermediate
          organic type project with the help of COCOMO.   [16]

Q4.   a) Briefly explain the importance of dialog design and criteria of 'good' dialog
          design. b) Explain with diagrams various ways of designing dialog.   [16]

Q5.   Draw SSADM's hierarchical structure with feasibility.
       Also mention the steps involved in development process.   [16]

Q6.   From the following precedence table draw the PERT network and show the
       critical path. Also draw the Gantt Chart.

Name Code	Immediate Predecessor	Duration (days)
A	-	8
B	A	16
C	B	16
D	B	14
E	A	8
F	E	24
G	E	32
H	C,D,F,G	16

[16]

SECOND HALF
Answer any three questions from second half.

Q7. a) Define Software Quality.   [3]
  b) Describe how the different aspects of a software product are captured in McCall's software quality factors.   [6]
  c) What are the different values that are to be ascertained to compute DSQI. [3] How can you calculate DSQI from the above values?   [4]

Q8. a) When does the Software Maturity Index (SMI) approach 1? Give reasons to justify your answer.   [3]
  b) Explain the terms i) MTTF ii) MTTR iii) MTBF.   [3]
  c) Describe the drawbacks of McCabe's Cyclomatic Complexity Metric. [3]
  d) Why White Box Testing and Black Box Testing are called so?   [3]
  e) Write a short note on Boundary Value Analysis.   [4]

Q9. a) Derive the expression for failure intensity assuming logarithmic Poisson execution-time model.   [4]
  b) What is Sandwich testing?   [3]
  c) Explain the terms i) regression testing ii) alpha testing iii) beta testing iv) smoke testing   [6]
  d) Describe the role of stub in top down testing approach.   [3]

Q10. a) Differentiate between stress testing and performance testing.   [4]
  b) Define software Configuration.   [3]
  c) What do you understand by i) SCI ii) baseline?   [5]
  d) Describe the common baselines.   [4]

Q11. a) Describe the different features of an object in Software Configuration Mangement.   [3]
  b) What is the difference between the basic object and aggregated objects? [4]
  c) Describe the steps of change control procedure followed in software development.   [6]
  c) How is configuration audit (CA) different from formal technical review (FTR)?   [3]