Code No: 115EM

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, November - 2015
SOFTWARE ENGINEERING
(Common to CSE, IT)

Time: 3 hours   **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A   **(25 Marks)**

1.a)   What is an agile process? Explain.   [2]
  b)   What is the difference between a UP Phase and a UP Workflow?   [3]
  c)   What is the intent of requirements validation?   [2]
  d)   What are the characteristics of good SRS document?   [3]
  e)   Differentiate between coupling and cohesion.   [2]
  f)   How do we assess the quality of software design?   [3]
  g)   What is Cyclomatic complexity? What is its purpose?   [2]
  h)   What are the metrics used for software maintenance?   [3]
  i)   What is software reliability? Define.   [2]
  j)   Can a program be correct and still not exhibit good quality? Explain.   [3]

PART - B   **(50 Marks)**

2.a)   What is the purpose of process assessment? Why has SPICE been developed as a standard process assessment?
  b)   Explain Spiral model with a neat sketch. What can you say about the software that is being developed or maintained as you move outward along the spiral process flow?   [5+5]

OR

3.a)   What are the five generic process framework activities? Explain.
  b)   Explain different levels of Capability Maturity model and list the KPA's of each level.   [5+5]

4.a)   What is the goal of requirements analysis phase? Give reasons why the requirements analysis phase is a difficult one.
  b)   Briefly explain the models used for structured analysis.   [5+5]

OR

5.a)   Differentiate between functional and non-functional requirements with suitable examples.
  b)   "Data Modeling can be viewed as a subset of OCA." Comment on this statement and justify your comments.   [5+5]

6.a) How are the concepts coupling and software portability are related? Provide examples to support your discussion.
  b) Explain the process of mapping data flow into software architecture. [5+5]

OR

7.a) Write the taxonomy of architectural styles and give a brief description of each style.
  b) State and explain the generic tasks that are always performed in user interface design. [5+5]

8.a) What is the need of software testing? What are its main objectives and principles?
  b) Describe Boundary Value Analysis (BVA) testing for software. [5+5]

OR

9.a) What are the main objectives of Software verification and validation? Briefly explain different V and V techniques.
  b) Discuss the software metrics that can be applied to the qualitative assessment of software quality and the side effects that occur during maintenance phase. [5+5]

10.a) Explain ISO 9126 quality model with a neat sketch.
  b) Explain various software quality standards and discuss how to assure them. [5+5]

OR

11.a) Explain the factors that affect software quality.
  b) List the major risks in a software project. What are the major ways to abate the risk of cost and schedule overruns? [5+5]

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