



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Tech(ECE)/SEM-8/EC-803A/2013**

**2013**

**SOFTWARE ENGINEERING**

*Time Allotted : 3 Hours*

*Full Marks : 70*

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

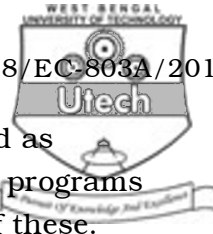
**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for the following :  $10 \times 1 = 10$ 
  - i) An example of single variable heuristic cost estimation model is
    - a) Halstead's software science
    - b) basic COCOMO model
    - c) intermediate COCOMO model
    - d) complete COCOMO model.
  - ii) The chain of activities that determines the duration of the project is
    - a) Duration path
    - b) Critical path
    - c) Linearly independent path
    - d) None of these.



- iii) Data processing programs are considered as
  - a) utility programs      b) system programs
  - c) application programs      d) none of these.
- iv) To achieve good design which quality a module should have ?
  - a) High cohesion, low coupling
  - b) Low cohesion, low coupling
  - c) High cohesion, high coupling
  - d) Low cohesion, high coupling.
- v) Compilers and linkers are
  - a) Organic software
  - b) Embedded software
  - c) Semi-detached software
  - d) none of these.
- vi) An integration testing approach, where all the modules making up a system are integrated in a single step is known as
  - a) top-down integration testing
  - b) bottom-up integration testing
  - c) big-bang integration testing
  - d) mixed integration testing.
- vii) Activity network is used to
  - a) decompose a given task set
  - b) project monitoring and control
  - c) to show different activities; duration and interdependencies
  - d) allocate resources to activities.
- viii) If the project size is same then development time is maximum for
  - a) Organic
  - b) Embedded
  - c) Semi-detached
  - d) Impossible to determine.



- ix) Data processing programs are considered as
  - a) utility programs                      b) system programs
  - c) application programs                d) none of these.
- x) Which of the following estimations is carried out first by a project manager during project planning ?
  - a) estimation of cost
  - b) estimation of the duration of the project
  - c) project size estimation
  - d) estimation of development effort.

**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.                       $3 \times 5 = 15$

2. Define product and process. What are the different process models ? Why are models needed ?
3. Mention different team structures and their usage in a software company.
4. What do you mean by UML ? Describe dynamic and static modelling in UML.
5. Explain DFD with an example.
6. What is SRS ? What are the characteristics for good SRS ?

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.                       $3 \times 15 = 45$

7. a) What is risk ? Briefly describe the categories of risk.
- b) What do you mean by software quality ? State and explain the McCall's quality factors.
- c) Describe sequence diagram with example.                       $5 + 5 + 5$
8. a) What is unit testing? What are the errors found during unit testing ?
- b) What are code walk-through and code inspection ?
- c) What is software reliability ?
- d) Explain Black-box testing and White-box testing.
- e) What is integration testing ?

$$( 2 + 1 ) + ( 2 + 2 ) + 2 + ( 2 + 2 ) + 2$$



9. a) What is cyclomatic complexity ? How can it be calculated ?
- b) Consider the code and calculate cyclomatic complexity.
- ```
Public void howcomplex() { int i=20;
    While (i<10{
        System.out.printf("i is %d", i);
        If (i%2==0) {
            System.out.println("even");
        }else{
            System.out.println("odd");
        }
    }
}
```
- c) What is boundary value analysis ?
- d) Compare top-down and bottom-up integration testing strategy.
- e) What is acceptance testing ?  $3 + 5 + 2 + 3 + 2$
10. a) Explain the phases of spiral model with advantages and disadvantages.
- b) Why is prototyping model used ?
- c) State the advantages and disadvantages of Waterfall model.  $8 + 3 + 4$
11. a) Explain the COCOMO model.
- b) Write notes on the following :
- (i) Cohesion and Coupling
  - (ii) Petri-net model
  - (iii) Stub and Driver.  $6 + ( 3 \times 3 )$
-