



AUTUMN END SEMESTER EXAMINATION-2019

5th Semester B.Tech & B.Tech Dual Degree

SOFTWARE ENGINEERING

IT-3003

(For 2018(L.E) & 2017 Admitted Batches)

Time: 3 Hours

Full Marks: 50

Answer any SIX questions.

Question paper consists of four sections-A, B, C, D.

Section A is compulsory.

Attempt minimum one question each from Sections B, C, D.

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only.

SECTION-A

1. Answer the following Questions [1 × 10]

- (a) Differentiate between exploratory style and modern style of software development.
- (b) What do you understand by the phrase "software doesn't wear out".
- (c) List the properties of a good SRS.
- (d) Explain the three types of testing conducted during the system testing.
- (e) What do you mean by software reusability?
- (f) "Development time is sublinear function of product size": Based on the statement identify the type of COCOMO model and justify the statement.
- (g) State different UI (User Interface) design styles.
- (h) What do you understand by risk leverage? How it is calculated?
- (i) Differentiate between verification and validation in software testing.
- (j) State the use of SaaS (Software as a Service) in software development.

SECTION-B

2. (a) Explain the concept of Evolutionary Model? Give an example of a software application which you will develop using the evolutionary model and why? [4]
- (b) Explain the functional, non functional and constraints of a SRS document along with an example. [4]
3. (a) Compute the function point value for a project with the following domain characteristics: [4]
- 1. No. of user inputs = 24
 - 2. No. of user outputs = 65
 - 3. No. of user inquiries = 12
 - 4. No. of files = 12
 - 5. No. Of external interfaces = 4
- Various processing complexity factors are: 4, 1, 0, 3, 3, 5, 4, 4, 3, 3, 2, 2, 4, 5.
- (b) Describe the role of COCOMO Model in software engineering. Explain the three categories of software product development. [4]

SECTION-C

4. (a) Using the table below, draw the network diagram and answer the following questions: [4]

Activity	Predecessor	Estimate in weeks
Start	-	0
C	Start	6
B	Start	4
P	Start	3
A	C, B, P	7
U	P	4
T	A	2
R	A	3
N	U	6
End	T, R, N	0

1. How many paths are in the network, and what are they?
 2. What is the critical path and its duration?
 3. What is the float on activity U?
 4. What is the impact to the project if activity B takes three weeks longer than planned?
 5. Do the forward and backward pass using original estimates.
- (b) Describe the activities of Software Design. List down atleast four good characteristics of Software Design. [4]
5. (a) A Garment House announces its trade discount policy as follows:
- If a customer is from shop and does purchase garments more than 6 pair a flat discount of 30% would be provided.
- If a customer is individual and does purchase garment of 6-19 pair 10% discount would be provided, 20% on discount for 20-49 pair and 30% discount on more than equal to 50 pair.
- In no other case, a discount would be provided.
- Draw a decision tree and table for above policies.
- (b) Differentiate between Cohesion and Coupling in Software Design. Classify the different levels of Cohesiveness. [4]
6. (a) Differentiate between software reverse engineering and reengineering ? [4]
- (b) What is UML? Draw a sequence diagram for “Issue Book” usecase of Library Information System. [Hints: Search + Issue of the book operation] [4]

SECTION-D

7. (a) What is white-box testing? Explain atleast three white box testing methodologies with suitable examples. [4]

- (b) Explain the concept of Control flow graph? Draw the control graph and calculate cyclomatic complexity for the following program segment. [4]

I=0;

n=4;

while ($i < n - 1$) do {

 j = I + 1;

 while ($j < n$) do {

 if $A[i] < A[j]$

 swap($A[i], A[j]$);}

 i=i+1;

}

8. (a) How software reliability is achieved ? Discuss atleast three software realibility metrics. What is reliability growth model? [4]

- (b) For an Online Food Ordering System design the Data Flow Diagram. The external entities will be Supplier, Kitchen, Manager, and Customer. Develop the activities using the context level and subsequent level DFD. [4]
