



## AUTUMN END SEMESTER EXAMINATION-2017

### Software Engineering [IT-3003]

**Full Marks: 60**

**Time: 3 Hours**

*Answer any six questions including question No.1 which is compulsory.*

*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.*

<u>Q No:</u>	<u>Contents</u>	<u>Marks</u>
1.	<p>a) List the various reasons for software crisis.</p> <p>b) Distinguish between verification and validation.</p> <p>c) Justify Why SRS is known as black box specification</p> <p>d) State whether the following statement is true or False. Justify your answer. "software design should low fan out and high cohesive".</p> <p>e) Design test cases using equivalence class partitioning method for the grading system of KIIT University.</p> <p>f) "Statement coverage testing strategy is a stronger testing strategy than branch coverage testing strategy." (True/ False) Justify your answer.</p> <p>g) Differentiate between code walk through and code inspection.</p> <p>h) What is LOC? List its limitations.</p> <p>i) What is unit testing? What are its challenges? How it can be eliminated?</p> <p>j) Briefly explain four techniques of debugging.</p>	[10X2]
2.	<p>a Discuss about a SDLC model which deals with risks involved in the development process. Explain all its phases with neat diagram.</p> <p>b) Identify the functional ,Non functional requirement and constraints (if any )in the following problem description.</p> <p>"To withdraw cash, first a valid customer identification is required. For this ,the customer is prompted to insert his ATM card in card checking machine. If his card is found to be invalid, the card is rejected out along with an appropriate message displayed. If the card is verified to be a valid card ,the customer is prompted to enter his password .If the password is invalid ,an error message is shown and the customer is prompted to enter his password again. If the customer enters incorrect password consecutively for three times, then his card is seized and he is asked to contact the bank manager. On the other hand ,if customer enters his password correctly ,then he is considered to have validity identified himself and is prompted to enter the amount he needs to withdraw. If he enters an amount that is not a multiple of Rs. 100,the cash is dispensed if sufficient amount is available in his account and his card is ejected,</p>	[2X4]

otherwise his card is ejected out without any cash being dispensed Along with a message display regarding insufficient fund position in his account.

3. [2X4]  
a) Draw activity network graph for the following problem description and find the critical path . Draw the Gantt chart of this problem and find the float time.

JOB	ACTIVITY	PREDECESSOR	NORMAL TIME (DAYS)
A	Analysis-1.0 & SRS-1.0	-	10
B	Analysis-2.0	-	5
C	SRS-2.0	B	3
D	GUI Design	A, C	4
E	DB Design	A, C	5
F	GUI Coding & Unit Testing	D	6
G	DB Coding & Unit Testing	E	5
H	Integration & System Testing	F, G	5

- b) What is COCOMO? Discuss about various types of COCOMO.

4. [2X4]  
a) " Good design incorporates high cohesion and low coupling." (True/False) Discuss about different types of coupling.  
b) What is reliability? Discuss about any two metric for reliability? How hardware reliability is different software reliability?  
5. [2X4]

- a) Draw the control flow graph (CFG),determine the cyclomatic complexity and design test cases for each linearly independent paths present in the following code snippet.

```
1. int i,j,k
2. i=2;j=1;k=i+j;
3. while (i>a)
4. {   j=1;
5.     while(j<b)
6. {   k++;j++; }
7.     i--;
8. }
9. k=i+j;
```

- b) What are the objective of integration testing ?Briefly discuss the different approaches used for integration testing along with advantage and disadvantages.

6. [2X4]  
Railway Reservation System is a system used for booking tickets over internet. Any Customer Can book tickets for different trains. Customer can book a ticket only if the tickets are available. Customer searches for the availability of tickets then if the tickets are available he books the tickets by initially

filling details in a form. Tickets can be booked in two ways by i-ticket or by e-ticket booking. In case of i-ticket booking customer can book the tickets online and the tickets are couriered to Particular customer at their address. But in case of e-ticket booking and cancelling tickets are booked and cancelled online sitting at the home and customer himself has to take print of the ticket but in both the cases amount for tickets are deducted from customers account. For cancellation of ticket the customer has to go at reservation office than fill cancellation form and ask the clerk to cancel the ticket than the refund is transferred to customer account. After booking ticket the customer has to checkout by paying fare amount to clerk.

- a) Draw level 0 and 1 DFD of the given problem description along with its data dictionary.
- b) Draw use case diagram and activity diagram for the above case study.

7. [2X4]

- a) Discuss about software re- engineering. Why is it required ? Discuss about various cosmetic changes carried out during the process with neat diagram.
- b) How SEI CMM is different from ISO? Discuss about the key process areas of each level of CMM.

8. Write Short notes on two: [2X4]

- a) Team structure in a organization
- b) Configuration management
- c) Black box testing Vs white box testing.
- d) Prototype Model

Paper Setter.....

Moderator.....