MIT ACADEMY OF ENGINEERING

COURSE CODE: CS401T **7 DECEMBER 2023**

FINAL YEAR BTECH SEMESTER - VII BACKLOG 2016 PATTERN 2023 - 2024 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

END SEMESTER EXAMINATION

SOFTWARE ENGINEERING TESTING & QUALITY ASSURANCE

TIME : 2 HOUR **MAX MARKS : 50**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES:1**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks
4. All questons are compulsary

1	Justify how to Scalability Testing? *(Explaination 1 M, objectives 2M, attributes 5 M, steps involved in scalability testing 2M)*	**[10]**	**CO4**	**L4**
2	If a software inpute accepts the number 1 to 10, and 12-20, write five any baundry value test case scenarios for the same. All inputs are passed as integers. *(Each correct test case 2M)*	**[10]**	**CO4**	**L3**
3	Explain Security testing in detail. *(Each testing method with detailed explanation and example 2M)*	**[10]**	**CO4**	**L2**
4	List and discuss SQA any five attributes approach and metrics with suitable examples .*(Each 2M)*	**[10]**	**CO5**	**L4**
5	Explain Capability Maturity Model (CMM) & it's Levels. *(Each level identification with explanation 2M)*	**[10]**	**CO5**	**L5**

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS349T **24 FEBRUARY 2024**

TY BTECH SEMESTER - VI 2019 PATTERN 2023 - 2024 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

MID SEMESTER EXAMINATION

SOFTWARE ENGINEERING

TIME : 2 HRS **MAX MARKS : 50**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES:3**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1	AMOGH University (Education System) needs their own website and mobile app for better connectivity with their stakeholders. Suggest a suitable SDLC process model, explain the same in detail, and give the justification for the same. *[Identification of SDLC process model for a given scenario (2 marks), Detailed explanation of identified process model (8 marks), Justiifcation for suggested model (2 marks)]*	**[12]**	**CO1**	**L3**
2	AMOGH University has decided to complete the automation of their entire education system, initially with all the basic processes of academic and non-academic departments within six months of time, with reference to the following BASIC processes - Admission management system, Examination management system, Placement management system, Teaching - Learning processes, Library management system, and Finance management system.	**[10]**	**CO1**	**L4**

(Contd...)

Also university is planning to extend the automation for all other processes like Purchase management system, HR management system, Sports and Cultural management system, Instrastructure managment system, etc in near future.

1. Suggest the process model which can be used to design and develope the online education system with proper jutification.
2. Identify different stakeholders for the proposed system with their roles and responsibilities.
3. Explain the identified process model in detail with respect to development of online education system.

[Students should clearly mention the identified process model with proper justification (2 marks), Minimum 6 stakeholder identification with roles and responsibilities (3 marks), Detailed explanation with each phase explanied with respect to the system (5 marks)]

3	State the significance of requirment analysis. Elaborate elements of requirment analysis with neat and clean diagram. *[Students should clearly mention the identified process model with proper justification (2 marks), Minimum 6 stakeholder identification with roles and responsibilities (3 marks), Detailed explanation with each phase explanied with respect to the system (5 marks)]*	**[5]**	**CO2**	**L2**
4	What are the significances of use cases. With reference to software engineering lab - mini project, draw a use case diagram. Also, write at least 4 use case descriptions in detail. *[Students should clearly mention any four significance of use cases (2 marks), neat and clean use case diagram/s with at least 4 actors and 8 processes (4 marks), any 4 use case descriptions (4 marks)]*	**[10]**	**CO2**	**L3**
5 a)	Differentiate between Scenario based and Behavioral based software modelling with suitable example. *[Students should clearly differentiate with any 5 comparative parameters (5 marks)]*	**[5]**	**CO2**	**L2**

b) Explain Class-Responsibility-Collaborator (CRC) modelling, and draw CRC card with suitable example (Software Engineering Lab - Mini Project) **[8] CO2 L3**

[Students should clearly explain the CRC modelling (4 Marks) and draw a CRC card with referece to SE miniproject (4 marks)]

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS349T **11 JUNE 2022**

TY BTECH SEMESTER - VI RE-EXAMINATION 2021 - 2022

DEPARTMENT OF COMPUTER ENGINEERING

RE-EXAMINATION

SOFTWARE ENGINEERING

TIME : 3 HOURS **MAX MARKS : 100**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES: 2**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1	Attempt any two			
a)	Why waterfall model of the software engineering is not an accurate reflection of software development activities? What are the issues addressed by Umbrella Activities	**[10]**	**CO1**	**L3**
b)	Explain the DevOps concepts and process for implementation of educational ERP system	**[10]**	**CO1**	**L3**
c)	Explain the incremental development process model with neat block diagram. List its benefits and problems.	**[10]**	**CO1**	**L2**
2	Attempt any two			
a)	What is the need of Software Requirement Specification? Why Requirement Elicitation is difficult? What are the problems in requirement elicitation?	**[10]**	**CO2**	**L2**
b)	Explain activities and the steps used for negotiating software requirements for canteen management system	**[10]**	**CO2**	**L2**
c)	Explain the IEEE standard requirement document with its structure.	**[10]**	**CO2**	**L2**
3	Attempt any two			
a)	What is the purpose of use case diagram and illustrate the use case diagram for hospital management?	**[10]**	**CO3**	**L3**

	b)	The software has to develop for online canteen management. The system should be designed to provide following functionality i) Food menu ii) Order booking iii) Food delivery iv) Report generation Draw the Context and Level 1 Data flow diagram for above cases.	**[10]**	**CO3**	**L4**
	c)	The software has to be developed for automating the library. The system should be designed to provide following functionality 1. Issue of the book 2. Return of the bool 3. Query processing 4. Report Generation. Generate the Following UML diagram for above cases i) Use case diagram ii) Class diagram	**[10]**	**CO3**	**L3**
4		Attempt any two			
	a)	Identify major risks of payroll projects, and rank them according to their importance and develop the risk mitigation plan for identified risk.	**[10]**	**CO4**	**L3**
	b)	Suppose that a project was estimated to be 400 KLOC. Calculate effort & time for each of 3 modes of development.	**[10]**	**CO4**	**L3**
		Software Product Type a b c d Organic 2.4 1.05 2.5 0.38 Semi-detached 3.0 1.12 2.5 0.35 Embedded 3.6 1.20 2.5 0.32			
	c)	What is project scheduling? What are the basic principles of project scheduling? Explain with a suitable example.	**[10]**	**CO4**	**L2**
5	**a)**	what is software testing? why it is so important in SDLC?	**[8]**	**CO5**	**L2**
	b)	Explain the two fundamental approach to identify test cases.	**[6]**	**CO5**	**L2**
	c)	Differentiate Black box and white box testing	**[6]**	**CO5**	**L2**

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS349T **18 MAY 2022**

TY BTECH SEMESTER - VI 2021 - 2022 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

END SEMESTER EXAMINATION

SOFTWARE ENGINEERING

TIME : 2 HOURS **MAX MARKS : 50**

TOTAL NO OF QUESTIONS: 05 **TOTAL NO OF PRINTED PAGES: 02**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1	**a)**	Construct following UML diagrams for the Digital Learning system while considering students as a user. 1. Architecture Diagram 2. Deployment Diagram *Evaluation scheme: each diagram 5 marks*	**[10]**	**CO3**	**L3**
		OR			
	b)	The system is designed for use in clinics attended by patients suffering from mental health problems and records details of their consultations and conditions. It is separate from a more general patient records system as more detailed information has to be maintained and the system has to be set up to generate letters and reports of different types and to help ensure that the laws pertaining to mental health are maintained by staff treating patients.This is a secondary safety-critical system as system failure can lead to decisions that compromise the safety of the patient or the medical staff caring for the patient. There are also significant security and privacy considerations that have to be taken into account in this system. Give a suitable name to this system.Construct following UML diagrams for the same. 1. Architecture Diagram 2. Deployment Diagram *Evaluation scheme: each diagram 5 marks*	**[10]**	**CO3**	**L3**

2 **a)** Task ID Predecease ID Successor ID Duration **[10] CO5 L5**

A	1	2	3
B	1	3	8
C	2	4	5
D	2	6	5
E	3	4	7
F	3	5	2
G	4	6	4
H	5	6	3

Evaluate estimations for ECT and LCT for given problem.

Evaluation scheme: ECT calculation 5M and LCT calulations 5M

3 **a)** Explain in detail about Types of Security testing. *Evaluation scheme: explaination of each type with example 1M* **[6] CO6 L2**

b) Differentiate between white box testing and Black box testing. **[4] CO6 L2**

Evaluatin scheme : each difference 1M

4 **a)** What are the common activities in design process? **[6] CO3 L2**

Evaluation scheme: explaination each activity 1 M

b) Explain is a Regression testing with proper example? **[4] CO6 L2**

Evaluation scheme: explaination 2 M, Example 2 M

5 **a)** It is a software-controlled insulin delivery system for a personal insulin pump, which is used by diabetics to mimic the function of the pancreas(an internal organ) and hence control the level of glucose (sugar) in their blood.The level of blood sugar depends on what the system user has eaten, the speed of their digestive processes and the effectiveness of their body in metabolising blood sugar. Therefore, their is not a simple relationship between a blood sugar measurement and the amount of insulin to be injected. Rather, the control system has to make several measurements and assess the rate of change of blood sugar. Based on the current level and the rate and direction of change, the incremental amount of insulin to be injected is computed and injected using the micro-pump in the system. This is a safety-critical system as failure to inject the correct amount of insulin can have serious health consequences.Analyze the Risk and prepare Mitigation Plan. **[10] CO4 L4**

Evaluation scheme risk identification 2M, risk assessment 2M, risk prioritization 2M, risk mitigation and its effectiveness 4M

OR

b) Analyze the Risk and prepare Mitigation Plan for GANNA.COM (music app). **[10] CO4 L4**

Evaluation scheme risk identification 2M, risk assessment 2M, risk prioritization 2M, risk mitigation and its effectiveness 4M

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS349T **24 FEBRUARY 2023**

TY BTECH SEMESTER - VI 2022 - 2023 EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

MID SEMESTER EXAMINATION

SOFTWARE ENGINEERING

TIME : 2 HRS **MAX MARKS : 50**

TOTAL NO OF QUESTIONS: 5 **TOTAL NO OF PRINTED PAGES: 2**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1 Explain in detail any three types of process models used for software development with one real time example / system / application. **[12] CO1 L3**

[Students should clearly mention for each process model - Phases with neat diagram (1 mark each), Advantages (1 mark each), Disadvantages (1 mark each Marks), real time examples / systems where process model is applicable (1 mark each)]

2 ABC bank has decided to complete the automation of their entire system, initially with online core and intenet banking system within ONE year with reference to following BASIC processes - **[10] CO1 L4**

- customer onboarding, online account opening, online transaction, account balance verification, KYC, loan processing, account closure, debit and credit card application processing, fraud detection, branch to head office communication, bank statements, general ledger, etc. Also bank is planning to extend the system in near future with ATM banking, Mobile banking, Financial managment system, etc.

1. Suggest the process model which can be used to design and develope the online banking system with proper jutification.
2. Identify different stakeholders for the proposed system with their roles and responsibilities.
3. Explain the identified process model in detail with respect to development of online banking system.

[Students should clearly mention the identified process model with proper justification (2 marks), Minimum 6 stakeholder identification with roles and responsibilities (3 marks), Detailed explanation with each phase explanied with respect to the system (5 marks)]

3 State the significance of requirment analysis. Elaborate elements of requirment analysis with neat and clean diagram. **[5] CO2 L2**

[Students should clearly mention the identified process model with proper justification (2 marks), Minimum 6 stakeholder identification with roles and responsibilities (3 marks), Detailed explanation with each phase explanied with respect to the system (5 marks)]

4 What is the significance of use cases. With reference to scenario (online banking system) explained in question 2, draw the neat and clean use case diagram. Also, write at least 4 use case descriptions in detail. **[10] CO2 L3**

[Students should clearly mention any four significance of use cases (2 marks), neat and clean use case diagram/s with at least 4 actors and 8 processes (4 marks), any 4 use case description (4 marks)]

5 a) Differentiate between Extream Programming (XP) and Scrum agile models **[5] CO2 L2**

[Students should clearly differentiate with any 5 comparative parameters for two types of agile development (5 marks),]

b) Explain and discover software patterns in requirement modelling with suitable example. **[8] CO2 L4**

[Students should clearly explain the software paterns (2 Marks) and discover at least one software pattern from suitable example (6 marks),]

MIT ACADEMY OF ENGINEERING

COURSE CODE: CS349T **22 JUNE 2023**

TY BTECH SEMESTER - VI RE-EXAMINATION 2022-2023

EXAMINATION

DEPARTMENT OF COMPUTER ENGINEERING

RE-EXAMINATION

SOFTWARE ENGINEERING

TIME : 3 HRS **MAX MARKS : 100**

TOTAL NO OF QUESTIONS: **TOTAL NO OF PRINTED PAGES: 2**

INSTRUCTIONS TO CANDIDATES:

1. Assume suitable data wherever necessary
2. Non programmable scientific calculators are allowed
3. Black figures to the right indicate full marks

1	**a)**	Explain Water Fall model model with example. (Diagram 4M,explanation with example 6M)	**[10]**	**CO1**	**L2**
	b)	Explain working principles of Agile model. Write Advantages and disadvantages of Agile process model.	**[10]**	**CO1**	**L2**
2	**a)**	Write in details about how elements of requiremnt analysis is useful in finalization of SRS documents. Diagram 4 M, Explanation 6 M	**[10]**	**CO2**	**L4**
	b)	Explain requirement engineering in details. Evaluation Scheme: Iception, Elicitaion , Elaboration and negotiation 4M, Specification 2 M Validation 2 M, Requiremnt management 2M	**[10]**	**CO2**	**L2**
3	**a)**	To design and develop a system for Medical Report Management draw Use case diagram, Activity diagram, Sequence diagram and Architecture diagram. (Each correct diagram 2. 5 M)	**[10]**	**CO3**	**L3**
	b)	Explain any 5 UML diagrams for internet banking systems. Each correct diagram 2M	**[10]**	**CO3**	**L2**

4 a) Identify the Risk and prepare Mitigation Plan for hospital management system . **[10] C04 L4**
(Evaluation scheme risk identification 2M, risk assessment 2M, risk prioritization 2M, risk mitigation and its effectiveness 4M)

b) Explain risk mitigation life cycle. **[10] C04 L2**
(Diagram 4 M, explaination 6 M)

5 a) Let' s assume that you are a project manager of a power plant project and you listed; **[10 CO5 L3**
– All the Activities
– Predecessors
– Optimistic,Pessimistic and Most Likely Activity Durations
All the inputs are listed in the table below. calculate ECT and LCT. (ECT 5M,LCT 5M)

Activity	Description	Predecessors	Optimistic Duration (To)	Pessimistic Duration (Tp)	Most likely Duration (Tm)	Expected Duration (To + 4Tm + Tp)/6
0	Start Milestone	-	0	0	0	0
A	Select Technical Staff	0	12	18	15	15
B	Site Survey	0	6	12	9	9
C	Select Equipments	A	9	15	12	12
D	Prepare Designs	B	6	18	9	10
E	Bring Utilities to the Site.	B	18	36	30	29
F	Interview Applicants and Fill Positions	A	9	15	12	12
G	Purchase the Equipment.	C	36	42	36	37
H	Construct the Power Plant	D	42	54	48	48
I	Develop an Information System.	A	6	18	12	12
J	Install the Equipment.	H,G,E	3	9	6	6
K	Train the Staff to Run the System	F,J,I	3	9	6	6

b) Write test sample cases for identified risks in question .4 a) for hospital management system. Each sample test case correctly defined 2 M **[10] CO6 L2**