Reg. No : 21BCE1184

Name :

VIT

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

Continuous Assessment Test I – January 2023

Programme	:	B.Tech. (Computer Science & Engineering)	Semester	:	Winter 22-23
Course	:	Software Engineering	Code	:	BCSE301L
Faculty	:	Dr.A.Sherly Alphonse Dr.D.Kavitha Dr. K.P. Vijayakumar Dr.M.Revathi Dr K. Parkavi Dr Smrithy G S	Slot	:	C1+TC1
			Class No	:	CH2022235000246 CH2022235000241 CH2022235000242 CH2022235000245 CH2022235000240 CH2022235000244
Time	:	1½ Hours	Max. Marks	:	50

Answer ALL the Questions

Q. No.	Sub Sec.	Question Description	Marks
1.		An Online Railway Ticket Reservation System (ORTR) needs to be developed for the convenience of public availing the various services provided by the Railways department. ORTR should provide information about the arrival and departure of trains along with information about stations through which it passes. Search for trains passing through the stations can be obtained either by means of train number, train name, or specifying the source and destination stations. While displaying information about a train, it must display the availability of seats in different classes along with the waiting list position. Users can make payment through online using their credit/debit cards or internet banking. Users can cancel the booked ticket prior to the scheduled departure date and time. Suggest the most appropriate generic software process model that might be used as a basis for managing the development of the ORTR software system. Justify your answer with relevant arguments.	10
2.		You have been asked to develop an "Internet banking application" for your client. The application has been intended to help the customer to perform all their banking transactions online. Apply the Agile Scrum method to build the above system and elaborate the process involved in developing the same with its advantages and limitations. Justify the applicability of Scrum method to the above system.	10
3.		A POS (Point-Of-Sale) system is a computer system typically used to manage the sales in a retail store. It includes hardware components such as a computer, a bar code scanner, a printer, and software to manage the operation of the store. The store owner wants to develop the POS system for a Windows platform. Identify the different types of risks that may pose a threat to the development of the proposed system. With illustration, elaborate on the risk management activities in the development life cycle.	10
4.		Provide a work breakdown structure (WBS) for the Point of Sale (POS) system given in Question number 3. Present a project schedule for the tasks using a chart or any other diagram of your choice by making reasonable assumptions for time and effort.	10
5.	a.	You are asked to develop an online examination system. Apply Extreme Programming planning for developing the system in agile methodology.	5
	b.	Estimate the Effort and Time during the early design phase of the POS system using the basic COCOMO model. The development team is a mix of experienced and inexperienced people in the domain. Assume the size of the code is 10 KLOC. Make necessary assumptions for other factors.	5

School of Computer Science and Engineering

CSE3001 - Software Engineering

B.Tech (CSE) (F2 Slot)

CAT-I Examination, January, 2018

Time: 90 minutes **Max. Marks: 50**

Part-A (4 X 5 = 20)
Answer ALL Questions

1. Assume that you are a project manager for developing a net banking system of an organization. Identify all the possible project, product and business risks involved and prioritize the identified risk with proper justification.

2. Assume that an online shopping system is to be developed and identify the following
   a) Project scope
   b) Non – Functional requirements
   c) Project stake holders

3. Compare SPRIAL model & RAD model with respect to its merits and demerits .

4. What are the different phases involved in requirement elicitation process and give the deliverables of each phase. Mention few problems that might occur during requirement elicitation process.

Part-B (3 X 10 = 30)
Answer ALL Questions

5. A car rental system will allow three types of users: guests, members, and administrators. Guests will be able to browse location, availability, price, and model. Members will have their personal information stored (i.e. name, address, and credit card info.) and will have access to any specials offers. Finally, the administrator can change or update car models, prices etc.

   i) Identify the suitable process model for the above scenario and explain with proper justification and the description for each phase of the process model. (4)

   ii) Prepare an architecture design and functional requirements for the above scenario. (3+3)

6. Discuss how the project staffing and planning process can be carried out in a Software Engineering project. (10)

7. Consider an ERP package is to be developed for a textile based company. The requirement document shows four modules are required for the software. Assume that the project is of embedded type and find what is the duration and exact size of the team required to complete the above mentioned project successfully. Refer the following information and the given table for further details. (10)

Size of the modules are estimated as follows

Raw material inventory	2.5 KDSI
Purchase order	0.8 KDSI
Finance management	4.0 KDSI
Pay roll management	2.3 KDSI

The manager rates the project details as follows

Complexity	VERY HIGH
Programming Language Experience	LOW
Turnaround time	NOMINAL
Development schedule	HIGH

Note:

If there are no values given in the table for a particular field, assume value 1 for that case.

Category	Cost Driver	Very Low	Low	Nominal	High	Very High	Extra High
Product Attributes	RELY Required Software Reliability	0.75	0.88	1.00	1.15	1.40	-
	DATA Database Size	-	0.94	1.00	1.08	1.16	-
	CPLX Product Complexity	0.70	0.85	1.00	1.15	1.30	1.65
Computer Attributes	TIME Execution Time Constraint	-	-	1.00	1.11	1.30	1.66
	STOR Main Storage Constraint	-	-	1.00	1.06	1.21	1.56
	VIRT Virtual Machine Volatility	-	0.87	1.00	1.15	1.30	-
	TURN Computer Turnaround Time	-	0.87	1.00	1.07	1.15	-
Personnel Attributes	ACAP Analyst Capability	1.46	1.19	1.00	0.96	0.71	-
	AEXP Applications Experience	1.29	1.13	1.00	0.91	0.82	-
	PCAP Programmer Capability	1.42	1.17	1.00	0.86	0.70	-
	VEXP Virtual Machine Experience	1.21	1.10	1.00	0.90	-	-
	LEXP Language Experience	1.14	1.07	1.00	0.95	-	-
Project Attributes	MODP Modern Programming Practices	1.24	1.10	1.00	0.91	0.82	-
	TOOL Use of Software Tools	1.24	1.10	1.00	0.91	0.83	-
	SCED Required Development Schedule	1.23	1.08	1.00	1.04	1.10	-

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SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

Continuous Assessment Test – I

CSE3001 - Software Engineering

Programme: B.Tech **Slot: F1**

Duration: 90 Mins **Max. Marks: 50**

Answer all questions

S.No.	Question
1.	Assume that you are a team leader of multimedia facilities to be handled for VIT Rivera 2019. The facilities includes, process associated with the cultural and gaming contest. You are requested to plan and schedule the task associated with the multimedia related activities. As a team leader, you are planning to create a digital diary for providing the entire task, detail, and schedules. a) Define the scope for the application. **[2 M]** b) You are supposed to identify appropriate process model for the application. It is assuming that process models such as waterfall, RAD, incremental and prototyping model are suitable for the application. As a team leader, you have to propose only one model for the entire processes execution. Which one would you prefer? **[2 M]** c) State any three reasons for choosing the as a suitable one. **[3 M]** d) Provide one reason for each of the model that is not found appropriate. **[3 M]**
2.	a) List out the various task and sub tasks involved in the process of deciding the decoration and multimedia facilities during the Rivera 2019.[Hint: Minimum of Three Tasks need to be identified] **[3 M]** b) Generate a hierarchical structure for the identified tasks and sub-tasks and highlight the major processes involved. **[4 M]** c) Assign the approximate schedule for the identified tasks and sub tasks. **[4 M]** d) From the identified task and sub tasks, derive the roles and responsibilities of the people involved in the processes and represent it in the work break down structure form to ensure the monitoring and tracking process. **[4 M]**

3. Consider the development of digital diary for organising the decoration and multimedia activities happening during 'Rivera 2019. To develop it, various requirements with different perspectives to be collected and analysed. In order to perform the analysis for digital diary elucidate the following,

a. List any four different users' of the system. **[2 M]**

b. Write any two specific requirements satisfying each of the users' mentioned in question number 3.a. **[8 M]**

c. Define three emergent requirements, which decide the core non-functional requirement of the system. **[5 M]**

4. I **Fill in the blanks** **[4 M]**

a. _____ is part of the system engineering process concerned with developing the software infrastructure, control applications and databases in the system.

b. The _____ allows for the straightforward definition of milestone progress.

c. _____ provides a framework for effective delivery of technology, forms the basis for management and also provides the context for work products, milestones, quality measures, and change management.

d. _____ is arranged in a hierarchy and constructed to allow feel clear and logical groupings.

II **True or False** **[3 M]**

e. A stakeholder is anyone who will purchase the completed software system under development.

f. Requirements should specify 'what' but not 'how'.

g. A Software is not correct until it not meets all the user requirements.

III **Match the following** **[3 M]**

A	B
1. Umbrella Activity	a. Testing
2. Framework Activity	b. Scheduling
3. Milestone	c. Configuration Management

VIT

School of Computer Science and Engineering

CSE3001 - Software Engineering

(F1-Slot)

CAT-I Examination, January, 2018

Time: 90 minutes

Max. Marks: 50

Part-A (4 X 5 = 20)
Answer ALL Questions

1. Consider patient monitoring system, create a schedule chart stating the milestones and deliverables.
2. Assume you're a project manager for developing e-ticketing system and identify the entire possible proactive and reactive risks associated with project, product and business.
3. State the difference between software and system engineering. In which process the system engineers will be involved.
4. Compare Waterfall model & incremental development model with respect to merits, demerits and applications.

Part-B (3 X 10 = 30)
Answer ALL Questions

5. a) Choose the appropriate model that you would prefer for each of the following applications and justify your answer with the suitable comments.
   i. Net Banking system
   ii. FFCS system

   b) Explain in detail the agile methodologies. Mention the advantages of the agile methodologies.

6. a) Discuss the various activity involved in a software requirement engineering process.
   b) Justify how system model helps people to understand the functionality of the software project in various perspectives.

7. Assume you as a system analyst, how do you apply software requirement engineering model for an e- healthcare system in identifying the following:
   i. Functional Requirement
   ii. Non – Functional Requirements
   iii. Requirement Prioritization
   iv. Stakeholder Identification

CSE3001 - Software Engineering

(F1-Slot)

CAT-I Examination, January, 2018

Time: 90 minutes **Max. Marks: 50**

Part-A (4 X 5 = 20)
Answer ALL Questions

1. Consider patient monitoring system, create a schedule chart stating the milestones and deliverables.
2. Assume you're a project manager for developing e-ticketing system and identify the entire possible proactive and reactive risks associated with project, product and business.
3. State the difference between software and system engineering. In which process the system engineers will be involved.
4. Compare Waterfall model & incremental development model with respect to merits, demerits and applications.

Part-B (3 X 10 = 30)
Answer ALL Questions

1. a) Choose the appropriate model that you would prefer for each of the following applications and justify your answer with the suitable comments.
   i. Net Banking system
   ii. FFCS system
   b) Explain in detail the agile methodologies. Mention the advantages of the agile methodologies.

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Reg. Number:

Continuous Assessment Test II (CAT) - Aug 2024 -25

Programme	:	B.Tech - BCE, BAI, CPS, BRS	Semester	:	Fall 2024-25
Course Code & Course Title	:	BCSE301L & Software Engineering	Class Number	:	CH20242501001347 CH20242501001316 CH20242501002292 CH20242501000966 CH20242501000970 CH20242501000974 CH20242501001317 CH20242501001380 CH20242501002456 CH20242501000549 CH20242501001315
Faculty	:	Dr.Jayanthi.R, Dr.Suganeshwari G, Dr.S.Brindha, Dr.G.Saranya, Dr.Alok Chauhan, Dr.Sudharson S, Dr N.M.Elango, Dr.Smrithy G S,Dr. Rama Prabha K. P, Dr. N Ganesh, Dr.Ilakiyaselvan N	Slot	:	G1+TG1
D	:	90 Minutes	Max. Mark		50

al Instructions:

e only your registration number on the question paper in the box provided and do not write er information.

Answer all questions

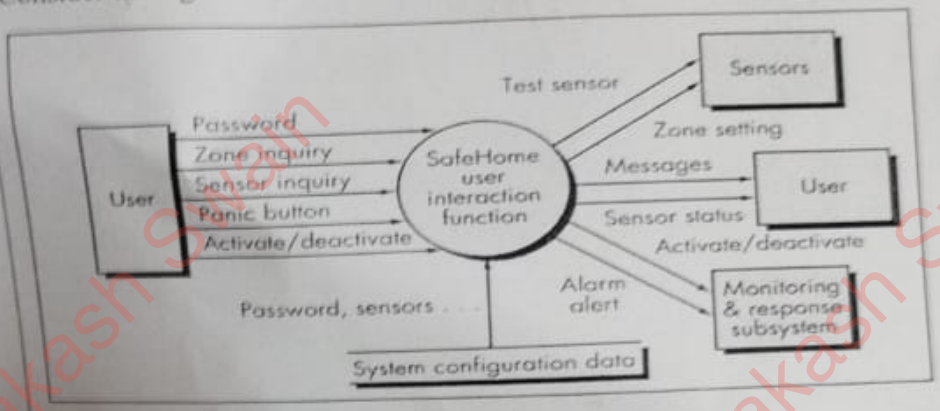
Q. No	Sub Sec.	Description	Marks
1.	a)	Imagine you are part of the Scrum team developing the "eBuzz India Ltd." Digital Restaurant Reservation Management System (DRRMS), which utilizes wireless booking technology to enable convenient and self-service table reservations. The success of the system relies heavily on avoiding issues like double bookings and ensuring clear communication of available time slots. Discuss how your team would implement Scrum and eXtreme Programming (XP) agile testing methods for DRRMS with a neat diagram. (6 Marks)	12
	b)	Describe how you would implement an Evolutionary Process Model and list the benefits of using this model for the eBuzz.(6 Marks)	
		VIT University is developing a fully automated online examination platform. The platform will allow students to appear for exams online and enable faculty members to assess students' performance. The platform will integrate with V-Top to fetch basic details of students and faculty and will include features such as user authentication, monitoring student behavior during exams, uploading answer scripts, verifying uploaded content, allowing faculty to override students in case of suspicious behavior, and	10

facilitating the evaluation and publication of results.

a) Develop a Work Breakdown Structure (WBS) for the development of this online examination platform. Break down the project into Five levels of detail, covering all key functionalities such as user authentication, monitoring, content uploading, and result publication. (5 Marks)

b) Explain how the Gantt chart can be used to track project progress and manage any changes that might occur during the development process. (5 Marks)

3. Consider the figure:



6

The Function Types and Counts from the above figure follows below:

- External Inputs (EI): Password, Panic Button, Activate/Deactivate (3)
- External Outputs (EO): Messages, Sensor Status (2)
- External Inquiries (EQ): Zone Inquiry, Sensor Inquiry (2)
- Internal Logical Files (ILF): System Configuration File (1)
- External Interface Files (EIF): Test Sensor, Zone Setting, Activate/Deactivate, Alarm Alert (4)

For a moderately complex product, assume (Fi) as 46. Calculate function point analysis.

4. For the "ebuzz India Ltd." DRRMS project mentioned in **Question No :1**, Elaborate three high-likelihood and high-impact risk management process with a neat diagram. 10

5. A Smart Home Automation System mobile app is developed to allow users to operate various home equipment, including lighting, thermostats, security cameras, and door locks. Users can create profiles for different family members, setting permissions for what each member can control. The system supports manual control and automation through schedules and sensors. Security is a critical concern, and the system must ensure that only authorized users can access or control the devices. 12

a) Identify the Functional and Non_Functional requirements for above system and represent the same as per Software Requirement Specification (SRS) template.(6 Marks)

b) Explain how you would engage different stakeholders (e.g., homeowners, security experts, developers) in the Requirements Engineering process for the Smart Home Automation System Mobile App.(6 Marks)

**********All the best**********

VIT
Vellore Institute of Technology
CHENNAI

Reg. Number: 22BCE1351

Continuous Assessment Test 1(CAT) – Aug 2024-25

Programme	:	B.Tech - BCE, BAI, CPS, BRS	Semester	:	Fall 2024-25
Course Code & Course Title	:	BCSE301L & Software Engineering	Class Number	:	CH2024250102293, CH2024250100976, CH2024250100968, CH2024250101385 CH2024250101320, CH2024250102297, CH2024250101319, CH2024250100972, CH2024250101387, CH2024250101321, CH2024250102296.
Faculty	:	Dr.Jayanthi.R, Dr.S.Brindha, Dr.Suganeshwari G, Dr.N Ganesh, Dr.Alok Chauhan, Dr.G.Saranya, Dr. Smrithy G S, Dr. Rama Prabha K. P, Dr.Praveen Joe I R, Softya Sebastian, Berin Shalu S.	Slot	:	G2+TG2
Duration	:	90 Minutes	Max. Mark		50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information.

Answer all questions

Q. No	Sub Sec.	Description	Marks
1.		Ootumlia Airlines operates sightseeing flights from Java Valley, the capital of Ootumlia. The reservation system manages records of passengers, including their assigned seats on various flights, and also tracks the crew members, detailing their roles and reporting structure. With several daily scheduled flights, the system must be designed with future expansion in mind, particularly the integration of a frequent-flier program. You have chosen to employ Extreme Programming (XP) to develop this system.	12
	i)	Describe the different phases of XP for the Ootumlia Airlines reservation system with design (5 Marks)	
	ii)	In the context of the Iterative model, how would you approach the initial requirement gathering and planning for the Ootumlia Airlines reservation system? (5 Marks)	
	iii)	Justify, Which features would you prioritize in the first iteration, and why? (2 Marks)	

2.	i) ii)	You are tasked with developing a software solution for a small retail business. The client has expressed a need for Inventory Management features such as Tracking stock levels in real-time, Automatic reordering of products when stock is low, and Managing supplier information and purchase orders. List all commonly used Requirements Elicitation Techniques for Inventory Management Systems. (4 Marks) Identify and describe three key techniques for eliciting requirements from a client who needs Inventory Management features. (6 Marks)	10
3	i) ii) iii) iv) v)	**From Question No 1:** Develop a Sprint Plan and outline the factors affecting the sprint plan for the Ootumlia Airlines reservation system with a diagram. (5 Marks) Determine which user stories to include in the Sprint Backlog for the Ootumlia Airlines reservation system. (3 Marks) Analyze the benefits and challenges of implementing the Scrum framework in a team working on the Ootumlia Airlines reservation system. (3 Marks) Describe how you would implement a Kanban board to manage the development of the Ootumlia Airlines reservation system. (5 Marks) Compare Kanban with Scrum as project management methodologies of the Ootumlia Airlines reservation system. (4 Marks)	20
4.	i) ii)	Consider a highly complex software product with the following function types and counts: • External Inputs (EI): 4 • External Outputs (EO): 3 • External Inquiries (EQ): 2 • Internal Logical Files (ILF): 2 • External Interface Files (EIF): 4 The complexity adjustment factor (Fi) is given as 58. Calculate the Adjusted Function Points (AFP) for this highly complex product. (5 Marks) Outline any three pros and cons of the functional point analysis. (3 Marks)	8

**********All the best **********

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Continuous Assessment Test I – January 2023

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	b.	Estimate the Effort and Time during the early design phase of the POS system using the basic COCOMO model. The development team is a mix of experienced and inexperienced people in the domain. Assume the size of the code is 10 KLOC. Make necessary assumptions for other factors.	5