School of Computer Engineering

Science and

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

Winter Semester 2023-24

Q. No.	Question	Max Marks
1.a.	You are interacting with the MIS department of a very large oil company with multiple departments. They have a complex regency system. Migrating the data from this legacy system is not an easy task and would take a considerable time. The oil company is very particular about processes, acceptance criteria and legal contracts. Answer the following questions. • Which model is best suited and, justify? (2 Marks) • Briefly explain about the suitable model? (3 Marks)	5
Ans: Key	• Which model is best suited and, justify: Waterfall model is best suitable (1 Mark), Justification (1 Mark) • Explanation about Model (2 Marks), Diagram (1 Mark)	
1.b.	Why each practice is simple and self-complete in eXtreme Programming? How combinations of practices make XP's behaviour more emergent?	5
Ans: Key	• Explanations of the Planning(Analysis), Design, Coding, Testing (3 Marks) • Combinations of aforementioned practice for the behaviour of XP (2 Marks)	

2.	Adobe is working on project to come up with a competing product for Microsoft Word, which provides all the features provided by Microsoft Word and any other features requested by the marketing team. The final product needs to be ready in 10 months of time. Compare how this project is executed using two different approaches, Spiral and agile SCRUM models. Among these which is most efficient methodology and justify with suitable comments?	10
Ans: Key	• Implementation of work using Spiral (3 Marks) • Implementation of work using SCRUM (3 Marks) • Comparison of both (2 Marks) • Most suitable methodology justification (2 Marks)	
3.	Catex, a medical healthcare private limited wanted to launch a telemedicine app to help patients in doctor consultation through online appointments, video consultation, health monitoring and telemedicine prescriptions. As an IT firm, think about the given scenario and create the phase-based and deliverable-based WBS. Find out the dependencies among the activities identified during WBS and prepare the suitable activity network.	10
Ans: Key	• Phase based WBS with 2-Levels (diagram and brief explanation 3 Marks) (identification of dependency and activity network 2 Marks) • Deliverable based WBS with 2-Levels (diagram and brief explanation 3 Marks) (identification of dependency and activity network 2 Marks)	
4.(a)	A simple standalone software utility is to be developed in Python language by a team of four members. The overall size of this software is estimated to be 20,000 lines of code. Calculate the effort, development time, productivity, and average staff size using organic COCOMO model approach.(a= 2.4 , b=1.05, c=2.5, d=0.38)	6
Ans: Key	• Effort = a × (KLOC) $^{(b)}_i$ Ans: 55.75 (Formula 1 Mark for correct answer 0.5 Mark) • Development Time = c × (Effort) $^{(d)}_i$ Ans: 11.52 (Formula 1 Mark for correct answer 0.5 Mark) • Average Staff Size = (Effort) / (Development Time) Ans: 4.84 (Formula 1 Mark for correct answer 0.5 Mark) • Productivity = (KLOC) / (Effort) Ans: 0.3587 (Formula 1 Mark for correct answer 0.5 Mark)	
4.(b)	Consider the following Scenario, and answer the questions • Project: Developing a new mobile app for a grocery delivery service called "FreshKart." They aim to launch before the peak holiday season to capitalize on increased demand. • Team: 5 developers, 1 product owner, 1 scrum master • Current Sprint: Sprint 3 (2 weeks remaining) • Challenge: During the daily scrum, a developer raises concerns about a critical bug impacting core user registration functionality. Fixing it completely would require exceeding the original sprint estimate and potentially delaying the launch. Questions:	4

	1. As the Scrum Master, how would you approach this situation to balance the need for quality with the tight launch deadline? (2 marks) 2. How can the team leverage Scrum principles like transparency and collaboration to find a solution within the remaining sprint time? (2 marks)	
Ans: Key	• The scrum master can set up the team, arrange the meeting and remove obstacles for the process, and define the plan (elaboration of the afore mentioned sentence according to given condition 2 Marks). • Ensuring artefacts and identifying the significant difference between expected and actual outcomes (elaboration of the afore mentioned sentence according to given condition 2 Marks)	
5.a)	You have been given the responsibility to elicit requirements from a customer who tells you "he is too busy to meet with you". Identify any two suitable elicitation techniques to collect the requirements from the customer. Justify your answer with explanation of suitable process and necessary examples.	**5**
	Collaborative Requirements Gathering, Quality Function Deployment, Usage Scenarios(use- case) / Interviewing / Ethnography • For each suitable (above-mentioned) process with justification and example (5 Marks) (2x2.5=5)	
5.b)	A multinational company is developing a comprehensive project management software tool for its distributed teams located across different time zones and continents. The software aims to streamline project planning, task assignment, progress tracking, and collaboration among team members. Identify any three functional and two non-functional requirements to support the project management software tool based on the scenario provided.	**5**
	1. Any three functional (3 marks) 2. Any two non-functional requirements (2 marks)	