

**VIT**Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)**Continuous Assessment Test (CAT - I) – January 2023**

Programme	: M.Tech. (Integrated) Computer Science and Engineering with Specialization in Business Analytics	Semester	: Winter 2022-2023
Course Title	: Software Engineering	Code	: CSE3036
		Class Nbr(s)	: CH2022235001930 CH2022235001931
Faculty(s)	: Dr. Sivabalakrishnan.M and Dr. Prassanna.J	Slot	: E1+TE1
Time	: 1 ½ Hours	Max. Marks	: 50

Answer all the Questions

Q.No.	Sub. Sec.	Question Description	Marks
1.		<p>The TechVIT software company is planning to develop a web-based Hospital Management Application Software (HMS) for an emerging hospital in the city. The HMS would use to control the hospital services and either a mobile or a computer browser can access the HMS application. The HMS application is planned to consist of several modules for its operations, including patients, nurses, doctors, hospital administrators, pharmacists and more. The ideas for HMS are as follows:</p> <p>HMS allows its patients to register via a registration module (form), which gathers and stores all required patient data. Patients can view available appointments to book an appointment. Once the patient visits the hospital, the receptionist will issue him a clinic number. when the patient's turn came, the patient explains his condition to the consulting nurse, who then performs a pre-assessment examination to diagnose the problem and then redirects him to the concerned doctor. The concerned doctor will then diagnose the patient, and then enter the prescription needed for the patient. If the patient needs further examination, then the doctor will redirect him to the nurse or lab assistant based on their responsibilities. The doctor then keeps track of the exam, recommending further action, if required, and entering a new prescription for the patient. Once the prescription is ready, the pharmacist will prepare the medicines for the patient and enters the dose and guidelines of each medicine into the system. Finally, the patient will need to go to the cashier to pay for his/her visit.</p> <p>The HMS system can handle many tasks depending on the functionality of the hospital management system. It supports policy-making, guarantees communication and coordination between staff, automates routine tasks, designs patient-focused workflows, advertisers, manages human and financial resources and delivers an uninterrupted supply chain.</p> <p>Assume that you are the system architect at TechVIT for the HMS system.</p>	

1	Outline the software process model you would prefer for HMS out of the other models and explain the model. Also, validate how the application will fit into the model to provide justification.	[10]
2	Identify the stakeholders of the HMS system and categorize the possible requirements of the HMS system into functional and non-functional requirements.	[10]
3	Create a minimum of two initial paper prototype designs of the HMS interface that consider various scenarios in which the project's requirements are not clearly known.	[10]
4	Examine the various data collection tools that are appropriate for HMS and choose and illustrate the one that is best fit for practice.	[10]
5	Sketch the use case and sub-use case diagrams for at least the two modules identified in the HMS system that provide detailed information about the actors, use cases and relationships among them.	[10]
Total		[50]

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Continuous Assessment Test II – March 2023

Programme	: M.Tech (Business Analytics) 5 Yr. Integrated	Semester	: Winter 22-23
Course	: Software Engineering	Code	: CSE3036
Faculty	: Dr. Sivabalakrishnan.M and Dr. Prassanna.J	Slot	: E1 + TE1
		Class Nbr	: CH2022235001930 CH2022235001931
Time	: 1 ½ Hours	Max. Marks	: 50

Answer ALL the Questions:

Q.No.	Sub. Sec.	Question Description	Marks
A.		<p>Online Food Ordering System (OFOS) is a web-based system that greatly simplifies the order and delivery of food for both customers and restaurants. OFOS presents an interactive and up-to-date menu with all available options in an easy-to-use manner. The customer can choose one or more items to place an order, which will land in the cart. The customer can view all the order details in the cart before checking out. At the end, customers get order confirmation details. The customer is given the option to pay online or with cash on delivery.</p> <p>Once an order is placed, it is entered in the database and retrieved pretty much in real time. This allows the restaurant employees to quickly go through the orders as they are received and process all orders efficiently and effectively with minimal delay and confusion. Once an order item is ready, OFOS sends a message to the delivery personnel, who pick up the ordered items from the restaurant and deliver them to the customer. The customer can check the status of the booked orders online. OFOS provides options to provide feedback based on the customer's experience.</p> <p>Answer the following questions with respect to the OFOS system:</p>	
1.		Design the user interface for the 'Deliver Order' and 'Checkout' processes. Justify the implementation of the eight Golden rules of interface design in either of your designs.	10
2.		Examine call and return architecture and data flow architecture for the development of the OFOS system. Choose and articulate the one suitable for the system. Justify your choice.	10
3.		Elaborate on how OFOS can be designed as a ' <i>highly cohesive</i> ' and ' <i>low coupled</i> ' system with specific examples. Analyze the impact of cohesion and coupling on designing an efficient system.	10
4.		Identify the important classes in the system, clearly defining their data and method attributes. Draw the class diagram with the identified classes.	10
5.		Identify two different test scenarios for the ' <i>Checkout</i> ' feature of OFOS and develop test cases for every scenario.	10

Final Assessment Test (FAT) - APRIL/MAY 2023

Programme	M.Tech. (Integrated)	Semester	Winter Semester 2022-23
Course Title	SOFTWARE ENGINEERING	Course Code	CSE3036
Faculty Name	Prof. Prassanna J	Slot	E1+TE1
		Class Nbr	CH2022235001929
Time	3 Hours	Max. Marks	100

PART-A (5 X 8 Marks)
Answer All questions

01. Consider the following scenario for ALL Questions. [8]

"VIT Info Systems Ltd.," has been approached by a leading US software client to develop an online job portal application (*VIT-JPA*) that provides employers and job seekers with a single platform. The main objective is: Job seekers will get to know the opportunities of their dream job by posting their resume, and employers can search for and find the required skills.

The following are the main functionalities of the above system:

- It should be a single platform where employers and job seekers can connect and virtually meet.
- Jobseekers should be able to post their resume and search for their dream job.
- Employers should be able to subscribe and search for skilled manpower.
- The employer should be able to manage the jobs, responses, and search for candidates.
- should have an option to send job alerts and job recommendations to job seekers.
- separate control panel and dashboard for job seekers and employers.
- subscription-based access for employers.
- Candidate search based on keywords, experience level, and salary range
- "Career Centre" is a pool of articles in a database that enables the job seeker to build his career.

• Job seekers can set the visibility of their resume search, block specific companies, and set their desired job details as well.

Job Seekers can search the jobs based on various criteria such as location, industry, experience, salary, job type and skillset.

Identify the most suitable process model for developing the above application, *VIT-JPA*. Justify your choice and elaborate on the implementation process for the chosen model.

02. Analyse and develop an SRS (Software Requirement Specification) document for the *VIT-JPA* system, clearly describing the various functional and non-functional requirements. [8]

03. Plan and structure the requirement elicitation and analysis processes that are preferred for efficient requirement gathering for the stakeholders of *VIT-JPA*. [8]

04. Articulate a test scenario to test both the functional and non-functional requirements of *VIT-JPA* and build the associated test cases for each of the test scenarios. Expect a minimum of four test cases for each scenario. [8]

05. The VIT Info Systems is planning to get ISO certification for the software life cycle processes on developing *VIT-JPA* as per the client's business requirements. Identify a suitable ISO standard and summaries the guidelines on the processes involved in its implementation. [8]

PART-B (3 X 20 Marks)

Answer All questions

06. VIT Info Systems is planning to go with an agile way of developing *VIT-JPA*. For this purpose, [20]
compare any two suitable agile methodologies and suggest one that is very suitable for the
development process. Suppose you are assigned the role of *SCRUM Master*. Compose your plan
with illustrations for assigning the tasks to your team members for managing the sprint cycle.
07. Design the swimlane diagram and ER diagram for considering any two scenarios from *VIT-JPA*. [20]
Describe the scenario considered in detail.
08. Criticize the applicability of a generic software configuration management process for the *VIT-* [20]
JPA and from the perspective of software maintenance, sketch the customer-side problem
reporting framework for the *VIT-JPA* with a detailed description.

