

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA-SEMESTER-III-EXAMINATION-WINTER-2024

Subject Code: 4539252

Date: 16/12/2024

Subject Name: Systems Analysis and Design

Time: 10:30 AM TO 01:30 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of simple calculators and non-programmable scientific calculators are permitted.

		Marks
Q.1	Definitions	14
	(a) System Design	
	(b) DFD	
	(c) Re engineering	
	(d) Project Workbook	
	(e) Real time Systems	
	(f) System Analysis	
	(g) OLAP	
Q.2	(a) Explain the Role and need of System Analyst.	07
	(b) Explain the SDLC model with suitable example.	07
OR		
	(b) Explain the use of CASE tools in the system development process. Explain Advantages and Disadvantages of Agile Development Methods.	07
Q.3	(a) Explain the key principles of systems documentation and discuss why adhering to these principles is critical for successful system development.	07
	(b) Define technical, operational, and economic feasibility in the context of system planning. Provide examples of how each type of feasibility is assessed in a real-world project.	07
OR		
Q.3	(a) How can organizations assess the value of IT investments? Discuss different approaches and frameworks used to evaluate the return on investment (ROI) of IT projects.	07
	(b) Why is it necessary to enforce documentation discipline within an organization? Discuss the challenges of enforcing it and strategies to overcome them.	07

- Q.4** (a) Explain the concepts of module coupling and cohesion in system design. Why is it important to aim for high cohesion and low coupling when designing software modules? **07**
- (b) What are Data Flow Diagrams (DFDs), and how do they contribute to system modeling? Explain the different levels of DFDs and their use in system analysis. **07**

OR

- Q.4** (a) What are the typical maintenance activities in IT projects? Discuss the common issues faced during system maintenance and strategies to overcome them. **07**
- (b) Describe the different types of testing (e.g., unit testing, integration testing, user acceptance testing) used in system implementation. Why is validation crucial during this phase? **07**

- Q.5** **CASE STUDY:** A university wants to implement an E-Learning Management System (ELMS) to manage online courses, student enrollments, assignments, quizzes, and learning materials. The system will allow instructors to create and manage courses, upload study materials, assign grades, and track student progress. Students will be able to enroll in courses, submit assignments, take quizzes, and view their grades. The university's administration needs reporting features to track overall system usage, course completion rates, and student performance analytics.
- The university's current manual process of managing courses and students via spreadsheets is time-consuming and prone to errors. The administration has decided to automate these processes with the ELMS to improve operational efficiency.
- The ELMS should have the following features:
1. Course Management: Instructors can create, edit, and delete courses. They can upload course materials like PDFs, videos, and quizzes.
 2. Enrollment Management: Students can self-enroll or be enrolled by administrators in different courses.
 3. Assignment and Grading: Instructors can create assignments, and students can submit them through the system. Instructors can grade the assignments and provide feedback.
 4. Quiz Management: Instructors can create quizzes, and students can take them online.
 5. Reports and Analytics: The system should provide detailed reports on student performance, course completion rates, and other academic statistics.
- (a) Identify and explain the functional and non-functional requirements of the E-Learning Management System (ELMS). Additionally, assess the feasibility of implementing this system from technical, operational, and economic perspectives. **07**
- (b) Using a Data Flow Diagram (DFD), model the process flow of the ELMS, from course creation to student enrollment, assignment submission, and grading. How would you ensure the system design is modular and efficient? **07**

OR

(a) Develop an Entity-Relationship Diagram (ERD) for the ELMS that identify key entities such as 'Student', 'Course', 'Instructor', 'Assignment', and their relationships. Explain how this model helps in conceptualizing the system's database design. **07**

(b) Design the user interface (UI) for the ELMS, focusing on different user roles (instructor, student, and administrator). Discuss how you would ensure usability and accessibility standards are met in the interface design. **07**