AR19

OBJECT ORIENTED SOFTWARE ENGINEERING
(Computer Science & Engineering)

Time: 3 Hours   Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	a)	Describe about object oriented process model with neat diagram?	6M
	b)	What are the metrics of Project? Explain it with example	6M
2.	a)	Discuss the generic steps should be followed by a software engineer to perform object-oriented analysis?	6M
	b)	What is object-oriented programming paradigm? Discuss its characteristics?	6M
3.	a)	Design Class collaboration diagram for banking application?	6M
	b)	What role does cardinality play in the development of an object-relationship model?	6M
4.	a)	Explain about Partition Testing at the Class Level with a suitable example?	6M
	b)	Explain singleton patterns.	6M
5.	a)	Explain the strategies for object oriented testing.	6M
	b)	Explain builder pattern	6M
6.	a)	What are the steps of the system design process?	6M
	b)	Explain about the following design patterns? i. Creational Patterns ii. Architectural patterns	6M
7.	a)	Explain various types of software requirements. What is the role of non-functional requirements for developing software?	6M
	b)	Explain about different sections of Design Pattern?	6M
8.	a)	Elaborate about four layer OO design pyramid with a neat diagram?	6M
	b)	What are the generic components of object-oriented design model?	6M

AR19

CODE: 19MSE1006   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular & Supplementary Examinations, August-2022

STRUCTURAL DYNAMICS
(Structural Engineering)

Time: 3 Hours   Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	a)	Explain the mathematical modelling of dynamics systems with relevant examples	**6M**
	b)	Define the following. i.) Natural frequency ii.) Damped frequency iii.) Time Period iv.) Damping ratio v. Critical damping	**6M**
2.	a)	Obtain the response in terms of displacement for a SDOF system subjected to Undamped forced Vibration	**6M**
	b)	Distinguish between i. Damped and Undamped vibration. ii. Continuous system and discrete systems	**6M**
3.		A block of mass 0.10 kg is suspended from a spring having a stiffness of 25N/m. The block is displaced downwards from the equilibrium position through a distance of 2 cm and released with an upward velocity of 3cm/sec. Determine (i) Natural Frequency (ii) Period of Oscillation (iii) Maximum Velocity (iv) Maximum Acceleration (v) Phase angle	**12M**
4.		Derive the solution for damped single degree of freedom system with forced vibration (F0)	**12M**
5.		Derive expression for the motion of free vibration of damped Single degree of freedom system using D' Alembert principle.	**12M**
6.	a)	Derive equation of motion of multi degree freedom systems by (i) Newton's equation of motion (ii) Mass spring damper system (iii) Dynamic equilibrium	**6M**
	b)	Derive an expression for force transmissibility.	**6M**
7.		Calculate the natural frequency and mode shapes for structure. M1 = 1kg M2 = 1.5 kg M3 = 2kg K1 = 600 N/m K2 = 1200 N/m k3 = 1800 N/m	**12M**
8.		Summarize the dynamics effects Earthquakes and wind forces	**12 M**

AR19

DESIGN OF FAULT TOLERANT SYSTEMS
(VLSI System Design)

Time: 3 Hours   Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	a)	Define and Explain the following all terms	12M
		i) Dependability ii) Reliability iii) Testability iv) Availability	
2.	a)	List out and explain various types of faults	6M
	b)	Differentiate Reliability of Series and Parallel systems	6M
3.	a)	Interpret the concept of time redundancy and software redundancy with suitable examples	12M
4.	a)	Illustrate the concept of self purging redundancy with neat circuit diagram	6M
	b)	Explain triple modular redundancy with neat circuit diagram	6M
5.	a)	Write the design procedure of totally self checking signature analysis checker	12M
6.	a)	Write the procedure of fail-safe sequential circuits design using Berger code	6M
	b)	Draw and explain strongly fault secure (SFS) logic network circuits	6M
7.	a)	Illustrate the concept of syndrome testing for digital circuits	6M
	b)	Interpret the importance of Reed Muller's expansion technique	6M
8.	a)	Explain the following all	12M
		i) BIST ii) Pseudo Random Testing iii) LFSR	