APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2020

Course Code: IT301

Course Name: SOFTWARE ARCHITECTURE AND DESIGN PATTERNS

Max. Marks: 100   Duration: 3 Hours

PART A
Answer any two full questions, each carries 15 marks.

			Marks
1	a)	Describe Prototyping life cycle model and discuss the areas where this model can be used.	(5)
	b)	What is software architecture? Why is it important?	(4)
	c)	Mention various approaches to correctness.	(6)
2	a)	Describe waterfall lifecycle model with neat diagram. List the advantages and disadvantages of it.	(10)
	b)	Discuss any two ways by which robustness can be achieved in software design with an example.	(5)
3	a)	Write notes on Extreme Programming.	(2)
	b)	Explain RAD model with diagram.	(7)
	c)	Write notes on efficiency of software design. Mention its types.	(6)

PART B
Answer any two full questions, each carries 15 marks.

			Marks
4	a)	What is UML? Mention its building blocks.	(3)
	b)	Mention the difference between aggregation and composition in UML with an example.	(5)
	c)	Explain pipe and filter architectural style in detail.	(7)
5	a)	Draw the use case and state chart diagram for a library management software.	(9)
	b)	Explain event based implicit invocation architectural style. List its advantages and disadvantages.	(6)
6	a)	Discuss the terms artifacts, nodes and components in deployment diagram with example.	(3)
	b)	What is the purpose of swimlanes in an activity diagram.Describe it with the help of an example.	(4)
	c)	Differentiate repository and blackboard architectural style with diagram.	(5)

d) What are the limitations of Layered architectural style? Write examples for systems that use Layered architecture. (3)

PART C
Answer any two full questions, each carries 20 marks.

7   a) What is a design pattern? Discuss its elements. (3)

    b) Discuss applicability, structure, participants and consequences of façade design pattern. (7)

    c) Mention the pattern used to reduce communication complexity between multiple objects or classes. Explain its structure, applicability and merits and demerits. (10)

8   a) Write notes on prototype design pattern. (10)

    b) Explain chain of responsibility pattern with an example. (5)

    c) Explain the phases and steps of ATAM. (5)

9   a) Mention which design pattern will be helpful to add new functionality to an existing object? Give its structure, participants and consequences. (8)

    b) Explain the structure and participants of observer design pattern. (8)

    c) Explain about composite class model. (4)

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