

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019

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) Explain about the iterative and incremental software process models. | (7) |
| | b) Explain the RAD model. When will you use this model? | (4) |
| | c) How speed efficiency is achieved in software process? | (4) |
| 2 | a) What is software architecture? Why it is important? | (4) |
| | b) Give a brief explanation about Agile method of software development. | (6) |
| | c) Mention the various formal approaches to improve correctness. | (5) |
| 3 | a) Compare the Extreme and Non-Extreme programming approach. | (5) |
| | b) List out the responsibility of software architect. | (4) |
| | c) List out the different approaches of class combination for reuse. | (6) |

PART B

Answer any two full questions, each carries 15 marks.

- | | | |
|---|---|-----|
| 4 | a) Draw a sequence diagram for Loan application processing. Explain the diagram. | (7) |
| | b) What is the need of using architecture styles in software development? | (4) |
| | c) Explain Layered architecture style in detail. | (4) |
| 5 | a) What is the notation for Inheritance in class diagram? Explain with an example. | (4) |
| | b) With a simple example explain the elements of an activity diagram. | (5) |
| | c) Explain MVC architecture style? Give its benefits and examples? | (6) |
| 6 | a) Draw a use case diagram for KTU exam registration process. Explain the diagram. | (7) |
| | b) Explain on pipe and Filter architecture style with examples. | (4) |
| | c) Explain the advantages and disadvantages of event based implicit invocation style? | (4) |

PART C

Answer any two full questions, each carries 20 marks.

- | | | |
|---|--|-----|
| 7 | a) What are design patterns? List out the benefits of using design patterns? | (6) |
| | b) Write notes on singleton pattern. | (6) |

- c) Mention the pattern used to reduce communication complexity between multiple objects or classes. Explain its functionality. (8)
- 8 a) If you want to develop a client application that allows user to print statement in different format and the client application is completely isolated from the details of formatting which pattern will you choose for implementation? Explain the pattern. (8)
- b) Explain the structure and participants of command pattern. (4)
- c) Explain the phases and steps of ATAM. (8)
- 9 a) What are structural design patterns? Explain about decorator and façade patterns. (10)
- b) Explain chain of responsibility pattern with suitable example. (5)
- c) Discuss the implementation and consequences of observer pattern. (5)
