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NMAM INSTITUTE OF TECHNOLOGY, NITTE

(An Autonomous Institution affiliated to VTU, Belagavi)

Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Make up Examinations – January 2018

14CS703 – SOFTWARE ARCHITECTURE

Duration: 3 Hours

Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

			Marks	BT*
		Unit – I		
1.	a)	What is Architectural Business cycle. Explain the working of ABC with neat diagram.	8	L*4
	b)	Define availability of a system. Describe availability quality attribute scenario with example.	8	L5
	c)	Differentiate between reference model, reference architecture and an architectural pattern?	4	L3
2.	a)	Summarize the advantages of software architecture.	4	L5
	b)	List and explain in brief the six parts of quality attribute scenario.	6	L1
	c)	Briefly explain the various software process activities involved in the creation of software architecture.	10	L2
		Unit – II		
3.	a)	Briefly explain Pipes and filters architectural style. Mention its Invariants and list its advantages and disadvantages.	10	L4
	b)	Explain the Security tactics with neat diagram.	10	L6
4.	a)	Define Tactics. Explain the various approaches in performance tactics.	8	L2
	b)	What is a mobile robotics system? Describe a control loop solution for mobile robotics.	7	L5
	c)	What are Interpreters? Identify its components.	5	L1
		Unit – III		
5.	a)	What is Broker Architectural pattern. Explain the variants, consequences and liabilities of Broker Pattern.	10	L4
	b)	Explain the various participating components of microkernel system and design its structure.	10	L6
6.	a)	What are Interactive systems. Design the various scenarios depicting the dynamic behavior of Model View Control pattern .	10	L6
	b)	Explain the implementation steps of Presentation Abstraction control pattern.	10	L4
		Unit – IV		
7.	a)	Explain the consequences and liabilities of master slave pattern.	7	L2
	b)	Define the structure of proxy design pattern.	7	L6
	c)	Describe the Dynamics of whole part design pattern.	6	L5
8.	a)	Give the structure of whole port design pattern with CRC.	5	L1
	b)	Explain the Dynamics of Master slave design Pattern.	5	L2
	c)	Describe the implementation steps and any four variants of proxy pattern.	10	L5

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Make up – January 2017

14CS703

Unit – V

9.	a)	Design evolutionary delivery life cycle model with neat figure.	6	L6
	b)	Explain briefly cross view documentation.	10	L4
	c)	Identify the steps for choosing the relevant views.	4	L1
10.	a)	Explain the steps involved in designing an architecture using the attribute driven design.	10	L4
	b)	What are the suggested standard organization points for view Documentation.	10	L1

BT* Bloom's Taxonomy, L* Level

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Supplementary Examinations – July 2017

13CS703 – SOFTWARE ARCHITECTURE

...uration: 3 Hours Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

			Marks	BT*
		Unit – I		
.	a)	Define architectural styles. Discuss the characteristics of styles.	7	L*2
	b)	Enumerate the status of software Architectures.	6	L3
	c)	Explain Pipes and filters in detail.	7	L2
.	a)	Explain the Architectural style based on i) Object oriented organization ii) Event-Based implicit invocation	8	L6
	b)	Describe the guidelines and rules for architectural design.	6	L4
	c)	Explain the concerns of various stakeholders for software architecture.	6	L2
		Unit – II		
.	a)	For a good system, what are the most important qualities? What are the system specific scenarios that capture these qualities and what are the general scenarios they make concrete?	10	L1
	b)	Write a set of concrete scenarios for availability using each of the possible responses in general scenario.	10	L1
.	a)	What is the relationship between interoperability and the other quality attributes? If two systems fail to exchange information property, what is the outcome? Discuss.	10	L6
	b)	Elaborate the tactics for modifiability.	10	L6
		Unit – III		
.	a)	Explain dynamics / scenario of MVC pattern with diagrams.	10	L4
	b)	How Broker architecture pattern can be used to structure distributed software systems? Explain with a suitable illustration.	10	L2
.	a)	Interactive software systems can be well designed using presentation-Abstraction-control architectural pattern (PAC). Support the claim by suitable illustrations.	10	L2
	b)	"Structural and behavioral changes in software systems being done dynamically." How to use Reflection architectural pattern to achieve this? Illustrate.	10	L2
		Unit – IV		
.	a)	Explain whole part design pattern. Elaborate how it is useful with the aggregation of components that together form a semantic unit.	10	L6
	b)	With a suitable example explain the proxy design pattern. Show how this pattern is useful in communicating the clients of a component.	10	L2
.	a)	Explain structure and implementation of Master-slave design pattern.	10	L2
	b)	Explain the variants of proxy pattern.	10	L2
		Unit – V		
.	a)	Explain the concept Attribute Driven Design with various components. Elaborate in detail various constraints used in a successful ADD.	10	L2
	b)	With necessary diagrams explain various steps used in Attribute Driven Design method.	10	L1
.	a)	What are views? Explain different type of views. List the methods to select proper views.	10	L2
	b)	What are the suggested standard organization points for interface documentation?	10	L1

...T* Bloom's Taxonomy, L* Level

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Make up Examinations – January 2017

13CS703 – SOFTWARE ARCHITECTURE

Duration: 3 Hours Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

			Marks	BT*
		Unit – I		
1.	a)	Define the term Software Architecture. How architecture Business cycle can be built by factors of influences?	7	L*1
	b)	Discuss software structures, in detail.	8	L6
	c)	Analyze the pipes and filter architectural style with neat diagram.	5	L4
2.	a)	Determine the importance of software architecture.	4	L5
	b)	Explain the architecture styles based on i)object –oriented organization ii)Event –based , implicit invocation	8	L2
	c)	Elaborate the design considerations for mobile robotics. Also discuss on the layered architecture for robotics.	8	L6
		Unit – II		
3.	a)	What is quality attribute scenario? List the parts of the scenario with an example.	6	L1
	b)	Illustrate availability general scenario with an example.	6	L2
	c)	Design the security tactics to detect, resist or to overcome from an attack.	8	L6
4.	a)	With help of appropriate diagram and example, explain the performance scenario.	6	L2
	b)	Discuss the availability tactics with neat figure.	8	L6
	c)	Illustrate the modifiability scenario with an example.	6	L3
		Unit – III		
5.	a)	What do you mean by Microkernel Pattern? Show the structure of Microkernel pattern with the CRC.	5	L1
	b)	Design the dynamic behavior of MVC pattern, with the possible scenarios.	8	L6
	c)	Identify the implementation steps and variants of Broker Pattern.	7	L3
6.	a)	Explain the working of Microkernel pattern with the help of dynamics.	8	L2
	b)	Discuss on the structure of reflection pattern?	6	L6
	c)	Build the CRC for top level, intermediate level and bottom level PAC agents.	6	L3
		Unit – IV		
7.	a)	Discuss the behavior of whole part structure using the scenario of 2D modeling for CAD system.	8	L6
	b)	Explain the dynamic part of master-slave design pattern?	6	L2
	c)	Explain the variants of proxy pattern?	6	L3
8.	a)	Elaborate the implementation steps of whole part pattern.	7	L6
	b)	Illustrate with Scenario the dynamics of proxy pattern.	7	L2
	c)	Determine the benefits and liabilities of master slave design pattern.	6	L5
		Unit – V		
9.	a)	Explain the evolutionary delivery life cycle model with neat diagram.	10	L2
	b)	Discuss the uses of architectural documentation. Bring out the concept of view as applied to architectural documentation.	10	L6
10.	a)	Explain the steps involved in designing an architecture, using the attribute driven design.	10	L5
	b)	What are the suggested standard organization points for interface documentation?	10	L1

BT* Bloom's Taxonomy, L* Level

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Make up Examinations – January 2017

13CS704 – PYTHON PROGRAMMING

Duration: 3 Hours | Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit**.*

			Marks	BT*
		Unit – I		
1.	a)	Explain the characteristics of the Python programming language. Give reason for the popularity of the language.	5	L*2
	b)	Explain the operator precedence and evaluation of expression in Python.	5	L2
	c)	Write a program to display the multiplication table from 1 to 9.	8	L3

	d)	Suppose the input is 2 3 4 5 0 (one number per line). What is the output of the following code?
		`number = eval(input("Enter an integer: "))`
		`max = number`
		`while number != 0:`
		`  number = eval(input("Enter an integer: "))`
		`  if number > max:`
		`  max = number`
		`print("max is", max)`
		`print("number", number)`
			2	L3

2.	a)	Write a program that prompts the user to enter two positive integers and finds their greatest common divisor.	7	L3
	b)	Write a program that writes ten random single digits to a file and reads them back from the file.	8	L3
	c)	Write a code segment that will print all of the names of files in the current working directory that have a ".py" extension.	3	L3
	d)	Assume that the variable data refers to the string "Python rules!". Write the values of the following expressions: (i) data.endswith('i') (ii) "totally".join(data.split())	2	L3
		Unit – II		
3.	a)	Explain any five list methods for inserting and removing elements with example.	8	L2
	b)	Describe the common sequence operation with example.	6	L1
	c)	Describe sequences, membership and methods with example.	6	L1
4.	a)	Describe any five dictionary methods with example.	5	L1
	b)	Write a program to convert a spiny of bits to a decimal integer in python.	10	L1
	c)	Explain any three types of basic list operations with example.	5	L2
		Unit – III		
5.	a)	With general syntax and example program explain the concept of Function Definition and Function Call in python.	8	L2
	b)	Discuss the following concepts with an example program i) Multiple Inheritance ii) Multilevel Inheritance.	10	L3

P.T.O.

13CS704 Make up – January 2017

c) Analyze the following code:

```
class A:
    def __init__(self):
        self.x = 1
        self.__y = 1

    def getY(self):
        return self.__y
a = A()
a.x = 45
print(a.x)
```

6. a) Considering a simple program explain the following concepts in python i) Class and Object. ii) Accessing Method and data members. 6
   b) Using Functions Write a Python Program to sort the given list of elements in ascending order using Bubble sort Technique. 6
   c) What does the keyword *self* mean in python class? Explain with an example program. 5
   d) Analyze the following two programs(**A** and **B**) and what will be the output after execution of those programs individually :

A:

```
def xfunction(length):
    if length > 1:
        print(length - 1, end = " ")
        xfunction(length - 1)
xfunction(5)
```

B:

```
def xfunction(length):
    while length > 1:
        print(length - 1, end = " ")
        xfunction(length - 1)
xfunction(5)
```

Unit – IV

7. a) With a suitable example, explain how events are handled with button, checkbox and radio buttons in python. 10
   b) Explain any four widget classes in Tkinter. 4
   c) Write a note on canvas in python, illustrate its use with an example. 6

8. a) Write the code to demonstrate a simple communication between client and server using socket concept. 10
   b) Explain any five thread related functions with syntax and show its usage. 10

Unit – V

9. a) Assume Employee table consists of attributes namely Firstname, Last name and Income created in database Test using Mysql. Perform the following operations using Python script.
   i) Insert records. ii) Delete records based on Income>10000. 10
   b) Explain the concept of CGI with a neat diagram. 6
   c) Write a CGI Script to display message "hello world ". 4

10. a) Write a CGI Script to handle input given by the web browser using checkboxes. 10
    b) Explain six http headers in CGI programming. 6
    c) Explain the following terms in read operation.
    i) fetchall ii) readcount 4

BT* Bloom's Taxonomy, L* Level

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

November - December 2016

13CS703 – SOFTWARE ARCHITECTURE

Duration: 3 Hours Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

			Marks	BT*
		Unit – I		
1.	a)	Briefly explain software architectures with definition.	5	L*2
	b)	Why is software Architecture important?	5	L2
	c)	What is Architecture Business Code? Explain the factor of influences on the software architecture with the neat diagram.	10	L2
2.	a)	Discuss the benefits and liabilities of pipes and filter architectural style.	10	L2
	b)	State the problem of KWIC. Propose implicit invocation and pipes and filter style to implement a solution for KWIC.	10	L1
		Unit – II		
3.	a)	What is quality attribute scenario? List the parts of such a scenario. Distinguish between availability and modifiability scenario.	10	L2
	b)	Explain architecture qualities.	4	L2
	c)	What are tactics? Explain the performance tactics with a neat diagram.	6	L2
4.	a)	Classify security tactics. What are the different tactics for resisting attacks?	8	L4
	b)	Explain how faults are detected and prevented.	6	L2
	c)	List and explain the three resource management tactics.	6	L2
		Unit – III		
5.	a)	Discuss the steps involved in the implementation of pipes and filters architecture.	12	L2
	b)	What are Interactive systems? What are the liabilities of PAC?	8	L1
6.	a)	Write the context, Problem and the solution for Reflection architectural pattern.	10	L2
	b)	Explain with a neat diagram, the dynamic scenarios of MVC.	10	L2
		Unit – IV		
7.	a)	What is Proxy Pattern? Briefly comment on the different steps carried out to realize the implementation of Proxy pattern.	10	L2
	b)	Discuss the structure of Whole-Part design pattern.	10	L2
8.	a)	Explain the five steps of implementation in Master-Slave pattern.	10	L2
	b)	Explain Proxy design pattern. What are its benefits and liabilities?	10	L2
		Unit – V		
9.	a)	With a neat diagram explain the evolutionary delivery life cycle model.	10	L2
	b)	Explain the steps performed when designing an architecture using the ADD method.	10	L2
10.	a)	What are the suggested standard organization points for interface documentation?	12	L2
	b)	How the documentation is organized to serve a stakeholder?	8	L2

BT* Bloom's Taxonomy, L* Level

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Supplementary Examinations – July 2016

12CS703 – SOFTWARE ARCHITECTURE

ration: 3 Hours

Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

		Marks	BT*
	Unit – I		
a)	Explain the three reasons to consider software architecture is important.	10	L*2
b)	What constitutes a software architecture?	10	L2
a)	Illustrate simple view of Blackboard architecture.	10	L4
b)	Write a case study for industrial development of a software at Tektronix, Inc. Outline the stages in this architectural development.	10	L4
	Unit – II		
a)	Classify security tactics. What are the different tactics for resisting attacks?	10	L2
b)	Explain in detail about the quality attribute scenarios.	10	L2
a)	What is software testability? Explain with sample testability scenario.	10	L2
b)	Explain in detail about Modifiability Tactics.	10	L2
	Unit – III		
a)	Explain the different Variants in Broker system.	10	L2
b)	Explain model view-controller.	10	L2
a)	Explain the benefits of Presentation-Abstract control architectural pattern.	10	L2
b)	Describe the all five kinds of participating components of Microkernel pattern.	10	L2
	Unit – IV		
a)	Explain the steps followed to implement a whole - Part structure.	10	L2
b)	Explain the Master-slave design Pattern.	10	L2
a)	Describe the seven variants of generic proxy Pattern.	10	L2
b)	Explain the benefits and liabilities of whole-part pattern.	10	L2
	Unit – V		
a)	Explain the attribute driven design.	10	L2
b)	Explain the steps involved in designing an architecture using the ADD method.	10	L2
a)	Describe the seven parts of a documented view.	10	L2
b)	What are the uses of architectural documentation? Explain the concepts of view as applied to architectural documentation.	10	L2

* Bloom's Taxonomy, L* Level

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Make up Examinations - January 2016

12CS703 – SOFTWARE ARCHITECTURE

Duration: 3 Hours | Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

			Marks	BT*
		Unit – I		
1.	a)	"Architecture affects the factors that influence them". Justify this comment.	10	L*6
	b)	Explain the different architecture activities that are done to create efficient architecture".	10	L2
2.	a)	Explain Mobile Robotics Problem and discuss the layered architectural solution for this problem.	10	L2
	b)	Explain KWIC problem and discuss the abstract data type solution for the same.	10	L2
		Unit – II		
3.	a)	Discuss Availability in practice and write a general scenario for it.	10	L2
	b)	Elaborate on availability tactics in detail.	10	L2
4.	a)	Discuss modifiability in practice and write a general scenario for it.	10	L2
	b)	Discuss the modifiability tactics in detail.	10	L2
		Unit – III		
5.	a)	Write CRC cards for different components of Broker architectural pattern.	10	L1
	b)	Explain steps for implementation of MVC pattern.	10	L2
6.	a)	Explain the liabilities and benefits of PAC pattern	10	L2
	b)	Explain implementation mechanism or steps for Microkernel pattern.	10	L2
		Unit – IV		
7.	a)	Write the implementation steps for Whole – Part design pattern.	10	L2
	b)	Explain the different variants for Master-Slave pattern.	10	L2
8.	a)	Explain the different variants of Proxy design pattern.	10	L2
	b)	Discuss applicatiion and Consequences of Proxy design pattern.	10	L2
		Unit – V		
9.	a)	Explain ADD and the different steps of Attribute Driven Design (ADD).	10	L2
	b)	Explain the different parts of documented view.	10	L2
10.	a)	Explain the different parts of documenting interfaces in detail.	10	L2
	b)	Explain concept of document across views.	10	L2

BT* Bloom's Taxonomy, L* Level

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

November - December 2015

12CS703 – SOFTWARE ARCHITECTURE

Duration: 3 Hours | Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

			Marks	BT*
		Unit – I		
1.	a)	Discuss the software structures.	10	L*2
	b)	Identify the factors of influence and explain the building of Architecture Business Cycle.	10	L2
2.	a)	Enlist the different architecture styles and discuss the event based implicit invocation and layered architecture style.	10	L2
	b)	State the problem of KWIC and propose abstract data type and implicit invocation style to implement solutions for the same.	10	L2
		Unit – II		
3.	a)	Discuss the availability and the modifiability general scenarios.	10	L2
	b)	Explain the following with respect to tactics : (i)Fault prevention (ii)Defer binding time (iii) Resource arbitration (iv)Internal monitoring (v) Runtime tactics	10	L2
4.	a)	Classify the security tactics. What are the different tactics for resisting attacks?	10	L4
	b)	What is the goal of tactics for testability?.Discuss the two categories of tactics for testing.	10	L2
		Unit – III		
5.	a)	Define broker architectural pattern. Explain with diagram objects involved in a broker system.	10	L2
	b)	What are the steps involved in implementation of microkernal system?	10	L2
6.	a)	With an example, explain when reflection architecture pattern is used. What are its benefits?	10	L2
	b)	Explain the different steps involved in the implementation of broker pattern.	10	L2
		Unit – IV		
7.	a)	Briefly comment on the different steps carried out to realize implementation of the proxy pattern.	10	L2

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SEE – November – December 2015

12CS703

b) Discuss the variants of Whole – Part design pattern. 10 L2

8. a) List and explain the steps to implement the Whole Part structure. 10 L2
   b) Discuss the structure ,dynamics and implementation of Master Slave pattern 10 L2

Unit – V

9. a) Write short note on i.forming team structure ii.document across views iii.documenting interfaces 10 L2
   b) Explain the different steps performed while designing an architecture using ADD method 10 L2

10. a) Explain with a neat diagram, evolutionary delivery life cycle model and list the steps of ADD method. 10 L2
    b) What are the standard organization points for view documentation? 10 L2

BT* Bloom's Taxonomy, L* Level

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Supplementary Examinations – July 2015

CS703 - SOFTWARE ARCHITECTURE

Duration: 3 Hours Max. Marks: 100

*Note: 1) Answer **Five full** questions choosing **One full** question from **each Unit.***
*2) Draw **diagrams** wherever necessary.*

Unit – I

1. a) Is software architecture important for system development? Justify your answer. 10
   b) Explain the following architectural styles in general 10
   (i) Pipes and filters (ii) Event based, implicit invocation (iii) Process control

2. a) What makes a "Good architecture"? What are the steps to create a efficient architecture and implementing it. Explain. 10
   b) Compare and contrast 4 different architectures for mobile robotics case study. 10

Unit – II

3. a) Discuss availability and performance as quality attributes." A correctly identified individual tries to modify system data from an external site; system maintains an audit trail and the correct data is restored within one day". Write general scenario for this sample scenario. 10
   b) Discuss how to achieve quality attribute with which you can change some parts of the system without affecting other parts. 10

4. a) Explain the business qualities and other quality attributes with reference to software architecture. 10
   b) Discuss security tactics and performance tactics in detail. 10

Unit – III

5. a) Explain the pattern which has components like core functionality and data ,and one for displaying information to user and controllers to handle user input. 10
   b) Discuss five kinds of participating components for pattern that adapt to changing system requirements and separates minimal functional core from extended functionality. 10

6. a) Explain pattern which has has meta level part and base level parts. 10
   b) Discuss different steps to implement pattern which has intermediate component for coordinating communications like forwarding requests and transmitting results and exceptions. 10

Unit – IV

7. a) Describe pattern which has two components, aggregate part and constituent parts in an assembly. 10
   b) Discuss pattern which has two distinct component ,one for distributing work to **worker** component and computes a final result from results of these worker components. 10

8. a) Define proxy pattern and discuss its variants . 10
   b) Discuss any five master slave pattern variants. 10

Unit – V

9. a) Explain Attribute Driven Design (ADD). 10
   b) Explain documenting a view. 10

10. a) Explain documenting across views. 10
    b) How to create a skeletal system and form the team structure to suit the architecture? Explain. 10

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

December - 2014

CS703 – SOFTWARE ARCHITECTURE

Duration: 3 Hours

Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

Unit – I

1. a) "Not all Architectures are good Architectures." Whether this statement applies to Software? Justify your answer. What are the features of a good architecture? 10
   b) Elaborate Various activities that are involved in creating Software Architecture in a project life cycle. 10

2. a) Write short notes on with a Suitable e.g.
   i) Data Abstraction ii) Implicit Invocation 10
   b) Explain Process control Architecture with suitable examples. List out its applications. 10

Unit – II

3. a) How Availability play a crucial role in software Architecture? List out the items which support the design and analysis process for availability. 10
   b) Distinguish between coupling and cohesion. How to balance these two in a effective software Architecture? 10

4. a) Why Security of a system play a Key role in good design? Explain the security tactics used. 10
   b) Explain Concrete testability scenario with a suitable illustration. 10

Unit – III

5. a) Elaborate the structure of the Broker Architectural pattern to structure the distributed software systems. 10
   b) What is MVC? With Necessary diagrams explain various scenarios which depicts dynamic behavior of MVC. 10

6. a) Explain various steps involved in carrying out the effective implementation of a PAC Architecture. 10
   b) How to change the structure and behavior of Software systems dynamically using reflection architectural pattern? Illustrate With a suitable example. 10

Unit – IV

7. a) 'Whole–part design pattern helps with the aggregation of components that form a semantic unit"; do you agree with the above said statement, if so justify your answer. 10
   b) What is proxy? Which are the key elements to be taken into account while using proxy design pattern? 10

8. a) Which are the three major application areas that are very well supported by Master-Slave design pattern. Elaborate. 10
   b) Write short notes on
   i) Structural decomposition ii) Organization of work iii) Access control 10

Unit – V

9. a) Explain various tapes of view used in software documentation. Suggest some guidelines to choose the views. 10
   b) Elaborate on standard organization format for documenting for a view. 10

10. a) What do you mean cay C&C view. Explain in detail the properties and notations used in C&C view. 10
    b) With a suitable illustration, explain how to document a behavior. 10

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

December - 2013

CS703 – SOFTWARE ARCHITECTURE

Duration: 3 Hours | Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

Unit – I

1. a) What makes a "Good" Architecture? Which are the rules to be followed while Designing an Architecture? — 10
   b) Write short notes on:
      (i) Architectural Pattern
      (ii) Reference Model
      (iii) Reference Architecture — 10

2. a) Mention the various Architectural Styles. Explain Pipes & Filters style. — 10
   b) What is the Cruise-Control Problem? Explain the Object View solution for the cruise control problem. — 10

Unit – II

3. a) Explain Quality Attribute Scenario with a neat diagram. — 10
   b) What is Testability? With a neat diagram, explain Sample Testability Scenario. — 10

4. a) What is a Tactic? Explain the various tactics used for Fault Detection. — 10
   b) What is Testability Tactic? Explain the various testability tactics. — 10

Unit – III

5. a) What is Broker System? How it can be used for developing a City Information System? Explain. — 10
   b) What is MVC? Explain the Implementation steps for MVC. — 10

6. a) What is PAC? What are its known uses? Mention its Benefits. — 10
   b) What is Microkernel? Mention the Implementation steps for the same. — 10

Unit – IV

7. a) What is Whole-Part design pattern? Explain its Variants. — 10
   b) What is Master-Slave pattern? Mention its Known uses. — 10

8. a) Write short notes on Proxy design pattern. Mention its Variants. — 10
   b) Explain the Steps for Implementing Whole-Part structure. Mention its Benefits. — 10

Unit – V

9. a) With a neat diagram, explain the Evolutionary Delivery Life Cycle Model. — 10
   b) What is ADD? Explain the ADD Steps. — 10

10. a) Explain the Steps involved in Documenting a View. — 10
    b) Explain the terms:
       (i) View Catalog
       (ii) View Template — 10

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

Supplementary Examinations – June 2013

CS703 - SOFTWARE ARCHITECTURE

ıration: 3 Hours

Max. Marks: 100

*Note: 1) Answer **Five full** questions choosing **One full** question from **each Unit.***
2) Draw the diagrams wherever necessary.

Unit – I

1. a) Is software architecture important? Justify your answer. 10
   b) Explain the following architectural styles in general
   (i)Pipes and filters (ii)Event based, implicit invocation 10

2. a) Explain what are the activities involved in creating a software architecture. 10
   b) Explain two solutions for mobile robotics case study. 10

Unit – II

3. a) Discuss availability and performance quality attributes. "A developer wishes to change the user interface. This change will be made to the code at design time, it will take less than three hours to make and test the change, and no side-effect changes will occur in the behavior". Write general scenario for this case. 10
   b) Discuss how to achieve quality attribute with which you can change some parts of the system without affecting other parts. 10

4. a) Explain business qualities and other quality attributes with reference to software architecture. 10
   b) Discuss security tactics and performance tactics. 10

Unit – III

5. a) Explain the Model View Controller pattern. 10
   b) Discuss the Microkernel pattern. 10

6. a) Explain the reflection pattern which is helpful in designing adaptable systems. 10
   b) Discuss broker pattern with an example. 10

Unit – IV

7. a) Describe whole – part design pattern. 10
   b) Discuss master slave design pattern. 10

8. a) Explain access control pattern. 10
   b) Describe master slave pattern. 10

Unit – V

9. a) Explain Attribute Driven Design (ADD). 10
   b) Explain the documentation of a view. 10

10. a) Explain the concept of documentation access views. 10
    b) Discuss use of architecture documentation and forming the team structure to suit the architecture. 10

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Seventh Semester B.E. (CSE) (Credit System) Degree Examinations

December - 2012

CS703 – SOFTWARE ARCHITECTURE

Duration: 3 Hours | Max. Marks: 100

*Note: Answer **Five full** questions choosing **One full** question from **each Unit.***

Unit – I

1. a) Define software Architecture. Explain the Architecture business cycle. 10
   b) Explain Architectural patterns, references models & reference architectures. Show the relationships among the three. 10

2. a) Explain the architecture styles based on
   (i) Data abstraction and object oriented organization.
   (ii) Event based, implicit invocation. 10
   b) What are the basic requirements of a mobile robot's architecture? How implicit invocation model handles them? 7
   c) Write a note on Heterogeneous Architecture. 3

Unit – II

3. a) What is availability? Explain the general scenario for availability. 10
   b) What is the goal of tactics for testability? Discuss the two categories of tactics for testing. 10

4. a) What are the qualities that the architecture should possess? 6
   b) List the parts of quality attribute scenario. 4
   c) Classify security tactics. What are the different tactics for resisting attacks? 10

Unit – III

5. a) Explain the variants of a broker Architecture. 10
   b) Discuss the consequences of presentation abstraction control architectural pattern. 10

6. a) Explain the components comprising the structure of microkernel Architectural pattern. 10
   b) Enumerate the implementation steps of reflection pattern. 10

Unit – IV

7. a) Explain the variants of whole-part design pattern. 10
   b) What are the application areas of master slave pattern? 10

8. a) Explain the Dynamics of master slave design pattern. 10
   b) What are the variants of proxy pattern? 6
   c) Explain the consequences of proxy pattern. 4

Unit – V

9. a) Explain the steps involved in designing an architecture using the attribute driven design. 10
   b) What are the options for representing connectors and systems in UML? 10

10. a) What are the three steps for choosing views for a project? 6
    b) Write a note on view catalog? 4
    c) "Architecture serves as a communication vehicle among stakeholders. Documentation facilitates that communication". Justify. 10

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