Software Architecture VTU CBCS Question Paper Set 2018

VTU CAMPUS APP

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10CS/IS81

Eighth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Software Architecture

Time: 3 hrs.

Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1 a. Define software architecture. With the help of a neat block diagram of ABC (Architecture Business Cycle) explain the factors that influences software architecture. **(10 Marks)**
   b. Explain in detail how software architecture manifests the earliest set of design decisions. **(10 Marks)**

2 a. Explain briefly the following with advantages and disadvantages:
      (i)   Data abstraction and object-oriented organization.
      (ii) Repositories. **(10 Marks)**
   b. State the problem of KWIC (Keyword in Context). Propose shared data and implicit invocation styles as solution to the same. **(10 Marks)**

3 a. What is availability quality attribute? Explain the availability general scenario. Also, bring out the concept of system failures. **(10 Marks)**
   b. What is a tactic? Explain modifiability tactics with a neat diagram. **(10 Marks)**

4 a. What do you mean by architectural pattern? How it is categorized? Also, explain the benefits of pipes and filters architectural pattern? **(10 Marks)**
   b. Explain in detail the implementation steps of layered architectural pattern. **(10 Marks)**

PART – B

5 a. Discuss briefly the structure of model view controller architectural pattern with neat CRC cards. **(06 Marks)**
   b. Illustrate the dynamic behavior of broker architectural pattern with a neat diagram that shows the interaction of brokers via bridge component. **(07 Marks)**
   c. Highlight on the consequences of presentation-abstraction control (PAC). **(07 Marks)**

6 a. What are the steps involved in implementing microkernel system? **(12 Marks)**
   b. Define reflection architectural pattern. Explain the dynamics of the same. **(08 Marks)**

7 a. Discuss the implementation steps of whole-part structure. **(08 Marks)**
   b. What are the benefits and liabilities of master-slave architectural pattern? **(06 Marks)**
   c. Define proxy architectural pattern. Explain its implementation steps. **(06 Marks)**

8 a. What are the ADD design steps? **(05 Marks)**
   b. What do you mean by documenting an interface? What is the suggested template for documenting interfaces? **(10 Marks)**
   c. List and summarize how the documentation is organized to serve a stakeholder. **(05 Marks)**

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Eighth Semester B.E. Degree Examination, June/July 2014
Software Architecture

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting*
atleast TWO question from each part.

PART – A

1   a. With the help of next block diagram of ABC (architecture business cycle). Explain in detail the different activities which are involved in creating a software architecture.   **(10 Marks)**
    b. Enumerate and explain in detail. the different groups of software architectures structure are categorized into, with the help of appropriate pictorial description.   **(10 Marks)**

2   a. Explain in brief about KWIC (keyword in context) with shared data solution.   **(10 Marks)**
    b. Explain in brief about pipes and filters style, with diagram.   **(10 Marks)**

3   a. Explain what is availability? Explain general scenario for availability?   **(10 Marks)**
    b. What do you mean by tactics? Explain availability tactics with neat diagram.   **(10 Marks)**

4   a. What do you mean by architectural pattern? How it is categorized? Explain the structure part of the solution for ISO layered architecture.   **(10 Marks)**
    b. Define blackboard architectural pattern? Briefly explain steps used to implement the black board pattern.   **(10 Marks)**

PART – B

5   a. What do you mean by broker architecture? What are the steps involved in implementing distributed broker architecture patterns?   **(10 Marks)**
    b. Explain with neat diagram, the dynamic scenarios of model view controller (MVC).
                                                                                (10 Marks)

6   a. What are the steps involved in implementing the microkernel system?   **(12 Marks)**
    b. What are the benefits and liabilities of "Reflection architecture". Patterns?   **(08 Marks)**

7   a. Discuss the five steps implementation of Master – slave – pattern.   **(10 Marks)**
    b. Explain in brief about variants of whole – part – design pattern, in brief.   **(10 Marks)**

8   a. Briefly explain the different steps performed while designing an architecture using the ADD method.   **(10 Marks)**
    b. Write short notes any two of following :
       i)   Forming team structures
       ii) Documenting across views
       iii) Documenting interfaces.   **(10 Marks)**

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Eighth Semester B.E. Degree Examination, June/July 2015
Software Architectures

Time: 3 hrs. ·   Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1 a. Define software architecture, with the help of neat block diagram of ABC (Architecture Business Cycle). Explain in detail the different activities which are involved in creating a software architecture? **(12 Marks)**
   b. Write short notes on:
      i)   Architectural patterns
      ii) Reference model
      iii) Reference architectures. **(08 Marks)**

2 a. Explain in detail about pipes and filters architectural style with types (invariants), advantages and disadvantages. **(10 Marks)**
   b. Explain in brief about KWIC (Keyword in Context) problem with abstract data types and implicit invocation styles to implement solutions. **(10 Marks)**

3 a. What are the qualities of system? Explain modifiability general scenario? **(10 Marks)**
   b. What do you mean by tactics? Explain the availability tactics with a neat diagram. **(10 Marks)**

4 a. Briefly explain pipes and filters architectural pattern benefits. **(08 Marks)**
   b. Define Blackboard architectural pattern. Briefly explain the steps used to implement the blackboard pattern. **(08 Marks)**
   c. Write a note on HEARSAY-II system. **(04 Marks)**

PART – B

5 a. Define Broker architectural pattern. Explain types of participating components which comprises it. **(10 Marks)**
   b. Explain with neat diagram, the dynamic scenarios of model view controller (MVC)? **(10 Marks)**

6 a. What are the steps involved in implementing microkernel system? **(12 Marks)**
   b. What are the benefits and liabilities of reflection architectural patterns? **(08 Marks)**

7 a. Discuss 5 steps in implementing Master-Slave pattern. **(10 Marks)**
   b. Discuss briefly implementation of whole-part-structure. **(08 Marks)**
   c. Mention benefits of proxy design pattern. **(02 Marks)**

8 a. Explain with neat diagram evolutionary delivery life cycle model. **(08 Marks)**
   b. What are the suggested standard organization points for interface documentation? **(12 Marks)**

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Eighth Semester B.E. Degree Examination, June/July 2016

Software Architecture

Time: 3 hrs.   Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1   a.   Briefly explain software architecture with definitions.   **(05 Marks)**
    b.   With the help of neat block diagram of ABC (Architecture Business Cycle), explain in detail the different activities which are involved in creating a software architecture.**(10 Marks)**
    c.   Why is software architecture important?   **(05 Marks)**

2   a.   Explain in brief about KWIC (Keyword in Context) with shared data solution.   **(10 Marks)**
    b.   Enlist architectural styles and explain event-based, implicit invocation.   **(06 Marks)**
    c.   Explain the advantages and disadvantages of pipes and filters in architectural style.**(04 Marks)**

3   a.   What is modifiability? Explain general scenario for modifiability.   **(10 Marks)**
    b.   Explain in brief the business qualities.   **(04 Marks)**
    c.   Explain how faults are detected and prevented.   **(06 Marks)**

4   a.   What do you mean architectural pattern? How it is categorized? Explain the structure part of the solution for ISO layered architecture.   **(10 Marks)**
    b.   Explain the steps involved in the implementation of pipes and filters architecture. **(10 Marks)**

PART – B

5   a.   What do you mean by broker architecture? What are the steps involved in implementing distributed broker architecture pattern?   **(10 Marks)**
    b.   Write benefits of MVC.   **(05 Marks)**
    c.   What are the liabilities of PAC?   **(05 Marks)**

6   a.   What are the steps involved in implementing the microkernel system?   **(10 Marks)**
    b.   Explain the dynamic scenarios of reflection with neat diagram.   **(10 Marks)**

7   Write notes on:
    a.   Design pattern
    b.   Master-Slave pattern
    c.   Whole-part pattern
    d.   Proxy pattern
    e.   Command processor   **(20 Marks)**

8   a.   Explain the steps performed when designing an architecture using the ADD method.
                                                                                          (10 Marks)
    b.   Write short notes any two of following:
         i)   Forming team structures
         ii) Documenting across views
         iii) Documenting interfaces.   **(10 Marks)**

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Eighth Semester B.E. Degree Examination, June/July 2017
Software Architectures

Time: 3 hrs. Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1 a. Define software architecture. Explain the importance of software architecture in brief. **(07 Marks)**

   b. Explain the various activities that are involved in developing software based on architecture. **(07 Marks)**

   c. Define architectural patterns, reference models and reference architectures. Briefly explain relationships between them. **(06 Marks)**

2 a. Enlist different architecture styles. Discuss in brief pipes and filters and implicit invocation architectural styles. **(07 Marks)**

   b. Explain the various design changes that need to be considered in the KWIC case study. **(05 Marks)**

   c. Identify the various inputs and outputs of cruise-control system and explain the control architecture for cruise control. **(08 Marks)**

3 a. Explain quality attribute scenarios. **(04 Marks)**

   b. What is availability? Explain the general scenario for availability. **(08 Marks)**

   c. Classify security tactics. What are the different tactics for resisting attacks? **(08 Marks)**

4 a. Explain the structure of pipes and filters patterns with CRC cards. **(08 Marks)**

   b. What are the benefits of layered patterns? **(04 Marks)**

   c. Enumerate the implementation steps of blackboard architectural pattern. **(08 Marks)**

PART – B

5 a. Identify the components involved in broker architecture. Explain the responsibilities of each component. **(08 Marks)**

   b. Explain the dynamic behavior of MVC pattern with one scenario. **(08 Marks)**

   c. List the benefits of PAC pattern. **(04 Marks)**

6 a. Explain the structural part of microkernel architectural pattern. **(08 Marks)**

   b. List the forces associated with the problem of reflection system. **(06 Marks)**

   c. Explain the benefits of reflection patterns. **(06 Marks)**

7 a. Give the structure of whole part design pattern with CRC. **(07 Marks)**

   b. What are the application areas of master slave pattern? **(06 Marks)**

   c. List the known uses and liabilities of proxy pattern. **(07 Marks)**

8 a. List the 3 steps of choosing views for a project. **(05 Marks)**

   b. Write a note on ADD and its steps. **(10 Marks)**

   c. List the steps in documenting a view for architecture. **(05 Marks)**

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Eighth Semester B.E. Degree Examination, Dec.2014/Jan.2015
Software Architectures

Time: 3 hrs.

Max. Marks:100

Note: *Answer FIVE full questions, selecting*
at least TWO questions from each part.

PART – A

1 a. What are the factors which affect the influence on software architecture? Explain ABC. (08 Marks)
  b. Explain Hybertsson's three views for software architecture. (07 Marks)
  c. Explain briefly the properties of a good software architecture design. (05 Marks)

2 a. Define architectural style. Mention any four commonly used styles. (05 Marks)
  b. Explain the advantages and disadvantages of pipes and filters in architectural style. (08 Marks)
  c. Explain the basic requirements for a mobile robot's architecture. (07 Marks)

3 a. What is functionality? Give examples. (04 Marks)
  b. Explain the quality attributes scenarios. (09 Marks)
  c. Explain how the faults are detected and prevented. (07 Marks)

4 a. Explain the list of components of a pipe and filters and write the problems based on blackboard problem. (08 Marks)
  b. Discuss the steps involved in the implementation of pipes and filters architecture. (12 Marks)

PART – B

5 a. What is the need of proxies and bridge components in a broker system? Explain it. (06 Marks)
  b. What is broker architecture? Write down the steps involved in implementing distributed broker architecture patterns. (10 Marks)
  c. What are the limitations of PAC patterns? (04 Marks)

6 a. List out and explain the components of a microkernel pattern. (10 Marks)
  b. Explain the advantages and disadvantages of a reflective architectural pattern. (06 Marks)
  c. Mention the liabilities of reflection architecture patterns. (04 Marks)

7 a. Explain the five steps implementation of master-slave pattern. (10 Marks)
  b. What are the benefits and liabilities of proxy design patterns? Define proxy design pattern. (10 Marks)

8 a. Draw a neat diagram and explain the evolutionary delivering life cycle model. (10 Marks)
  b. What are the steps in ADD? (04 Marks)
  c. Write the uses of SA documentation. (06 Marks)

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Eighth Semester B.E. Degree Examination, Dec.2015/Jan.2016
Software Architecture

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1. a. Explain how the software architecture affects the factors of influence. Hence or otherwise explain ABC. **(08 Marks)**
   b. Briefly explain the technical importance of software architecture. Further elaborate on the fact that architecture is the vehicle for stakeholder communication. **(07 Marks)**
   c. What is an allocation structure as applied to software architecture? Explain the three allocation structure in practice. **(05 Marks)**

2. a. Discuss the invariants, advantages and disadvantages of pipes and filter architecture style. **(10 Marks)**
   b. State the problem of KWIC. Propose implicit invocation and pipes and filter style to implement a solution for the same. **(10 Marks)**

3. a. What is quality attribute scenario? List the parts of such a scenario. Distinguish between availability scenario and modifiability scenario. **(10 Marks)**
   b. Explain how faults are detected and prevented. **(05 Marks)**
   c. Write a brief note on design time tactics. **(05 Marks)**

4. a. Discuss the guidelines involved in the implementation of pipes and filter architecture. **(10 Marks)**
   b. Write the context, problem and the solution part of blackboard architectural pattern. **(10 Marks)**

PART – B

5. a. What is the necessity of proxies and bridge components in a broker system? Explain. **(06 Marks)**
   b. Explain the possible dynamic behavior of MVC pattern with suitable sketches. **(09 Marks)**
   c. Highlight the limitations of PAC pattern. **(05 Marks)**

6. a. Explain in brief the components comprising the structure of microkernel architectural pattern. **(10 Marks)**
   b. Explain the known uses of reflection pattern. **(10 Marks)**

7. a. Briefly explain the benefits of master slave design pattern. **(06 Marks)**
   b. List and explain the steps to implement a whole part structure. **(08 Marks)**
   c. With neat sketch, explain the typical dynamic scenario of a proxy structure. **(06 Marks)**

8. a. List the steps of ADD. **(04 Marks)**
   b. Write a note on creating a skeletal system. **(06 Marks)**
   c. What are the uses of architectural documentation? Bring out the concept of view as applied to architectural documentation. **(10 Marks)**

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Software Architectures

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1   a. With the help of neat block diagram of ABC (architecture business cycle), explain in detail the different activities which are involved in creating a software architecture. **(10 Marks)**
    b. Briefly explain, what does software architecture constitute. **(05 Marks)**
    c. Describe the architectural structure of a system. **(05 Marks)**

2   a. Enlist architectural styles and explain event–based, implicit invocation, in brief. **(08 Marks)**
    b. State the problem of "key words in contex". Propose solution through,
        i) Abstraction data types
        ii) Implicit invocation solution. **(12 Marks)**

3   a. What are the qualities that the architecture itself should posses? **(06 Marks)**
    b. List the parts of quality attributes scenario. **(04 Marks)**
    c. What is the goal of tactics for testability? Discuss the two categories of tactics for testing. **(10 Marks)**

4   a. Explain different steps involved in the implementation of pipe and filters architecture pattern. **(10 Marks)**
    b. Discuss in brief the pattern, from mud to structure. **(10 Marks)**

PART – B

5   a. Explain the broker architectural pattern to structure distributed software system. **(10 Marks)**
    b. What is model–view architectural pattern? With an example illustration, write its structure and implementation over a scenario. **(10 Marks)**

6   a. Enumerate the implementation of a micro–Kernel pattern. **(10 Marks)**
    b. Explain the reflection architectural pattern and its known uses. **(10 Marks)**

7   Write short notes on :
    a. Design pattern
    b. Master-slave pattern
    c. Whole–part pattern
    d. Proxy pattern **(20 Marks)**

8   a. Explain ADD and its steps. **(08 Marks)**
    b. List the steps in documenting a view for architecture. **(07 Marks)**
    c. What are the uses of architectural documentation? **(05 Marks)**

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