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27.6.13 AN

Reg. No. :

Question Paper Code : 65008

5 Year M.Sc. DEGREE EXAMINATION, MAY/JUNE 2013.

Fifth Semester

Software Engineering

XSE 351/10677 SW 504 — SOFTWARE ARCHITECTURE

(Regulation 2003/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write about the disadvantages of object-oriented systems.
2. Substantiate, why Main Program/Subroutine with shared data style is not suitable for KWIC?
3. State the ways in which the tools can interact with a shared repository.
4. What are the forces which led to the evolution of shared information systems in software development?
5. Define functional design space and structural design space.
6. List down some of the key quality attributes.
7. Mention the steps used to formalize a Digital Oscilloscope.
8. What are the requirements for Architecture-Description Languages?
9. What are the two types of components?
10. State the advantages offered by architectural styles.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Why is software architecture important? Elaborate on how software architecture helps in building large systems based on quality. (8)
- (ii) Draw a neat diagram to illustrate how the stakeholders exert their influence over the architecture. Briefly comment on what your diagram communicates. (8)

Or

- (b) (i) Historically what is the role and importance of patterns of Christopher Alexander and Gang of Four patterns? (6)
- (ii) Explain the architecture styles based on : Data abstraction and object oriented organization and Event-based, implicit invocation. (10)

12. (a) Explain the architectural structures of shared information systems with an example. (16)

Or

- (b) Explain the need for integration in software development environments. Give relevant examples. (16)

13. (a) (i) What are the type components in systems that are classified by the user-interface systems? Explain them in detail. (8)
- (ii) What are the structural dimensions that represents the decisions determining the overall structure of a user-interface system? (8)

Or

- (b) Consider a library system where a student can renew books from HOME by logging into the college website which is hosting the library application. The system architect decides to use a browser based system to access the website over the internet. Explain the guidelines and rules that can be used by software architect for giving the suitable architectural design for the above scenario. (16)

14. (a) (i) What are the formal models and specifications used for software design? (8)
- (ii) Explain Z-notation in detail. (8)

Or

- (b) (i) What is a First-Class connector? What are the problems with the current practice in the usage of these connectors? (8)
- (ii) What are the requirements for Architecture-Description Languages? Explain. (8)

15. (a) Name three examples for research systems that aim to support architectural design and analysis. Briefly explain about the components and connectors in UniCon. (16)

Or

- (b) (i) Define Fable. Illustrate the structure of a Fable. (8)
- (ii) For the KWIC problem, offer different solutions using different architectural styles. Compare the solutions based on the Quality attributes. (8)
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