CMPN / VI sem / CBGS / Soft. Engg. / Nov. Dec. 2015

QP Code : 6308

Time: 3 Hrs Max Marks: 80

N.B.: (1) Question No. 1 is compulsory.
(2) Attempt any **three**questions out of remaining **five.**

1. A distance learning institute decides to use e-learning software to ease its regular functioning of the program. Through this e-learning tool students can register to various courses, appear for online exams, download study material, upload assignments online, view lecture videos etc. The faculty can upload study materials, conduct exams, teach one or many courses. The institute can check student and faculty information, collect fees, pay salary, display results and so on. Create an SRS for the institute that includes the following 20
   1. Product perspective
   2. Scope and objective
   3. Functional requirements (atleast 3)
   4. Non-functional requirements

2 Attempt any four (04).
   (a) Define Software Engineering. Explain in brief the software process framework. 5
   (b) Discuss on Modularity and Functional Independence fundamentals of design concepts. 5
   (c) Explain cyclomatic complexity. How is it computed? 5
   (d) Discuss the different categories of risk that help to define impact values in a risk table. 5
   (e) Briefly explain Unit and Integration Testing in the OO Context. 5

3. (a) Explain in brief the different types of coupling and cohesion. Give one practical example of high cohesion and low coupling 10
   (b) What is FTR in SQA? What are its objectives? Explain the steps in FTR. 10

4. (a) What is Agility in context of software engineering? Explain Extreme Programming (XP) with suitable diagram. 10
   (b) Explain different techniques in White Box Testing. 10

5. (a) Explain the various steps in Risk Management with suitable diagram. Identify the risks associated with delayed projects. 10
   (b) Explain different architectural styles with suitable brief example for each.

6. (a) Explain the change control and version control activities in SCM. 10
   (b) Explain TDD with its advantages. 10

Distributed Databases, CMPN, CBSGS / Nov, Dec-2015

QP Code : 6351

(3 Hours) [Total Marks: 80]

N.B. : (1) Question **No. 1 is compulsory.**
(2) Answer any **three** out of the **remaining** questions.

Q 1.

a) Define Client Server and Peer to Peer distributed system architecture. [05]
b) Give two applications of XML [05]
c) What do you mean by serializabilty in a distributed database? [05]
d) Explain the concept of a "semi-join" using an example. [05]

Q 2. Using a snapshot of the following centralized schema of a database:

- Departments*(DN, DName, Budget, Location)*
- Employees*(EN, EName, Title, DNo)*
- Salary*(Title, Salary)*

a) Show 2 examples of horizontal fragmentation with fragmentation rules [05]
b) Show 2 examples of vertical fragmentation with fragmentation rules [05]
c) Show 2 examples of derived fragmentation with fragmentation rules [05]
d) Demonstrate the correctness of your fragmentation rules. [05]

Q 3.

(a) Consider a employee management database which maintains entries for employees in a company. Employees may be programmers, managers, designers and testers. Appropriate information is to be maintained for each employee along with their address, salary, etc. (You can make any other reasonable assumptions)

I. Give the DTD for the XML schema for the described system. [05]
II. Write the following query in XQuery [05]

"Find programmers who have worked in projects coding at least two different languages in one year."

(b) Describe query processing in a distributed database. [10]

Q 4.

(a) Explain the different types of transparencies in a Distributed Database System [10]
(b) Describe clearly the Three Phase Commit (3PC) algorithm? [10]

Q 5.

a) Explain two concurrency control algorithms for a distributed database system [10]
b) What are the issues for query processing in a heterogeneous database? [10]

Q 6. Write Short notes on:

a) Heterogeneous Database Architecture. [10]
b) Distributed Deadlock Management. [10]

T.E/CMPN/CBSGS/Sem-VI/Mobile Communication and Computing

Q.P. Code : 6393

(3 Hours) **[Total Marks : 80**

NB :

1. Q1 is compulsory.
2. Attempt any 3 questions out of the rest.

Q1)

a) Draw and Explain Electromagnetic Spectrum for communication. (5)
b) Explain agent Advertisement in Mobile IP (5)
c) Explain the difference between Adhoc Network and infrastructure based wireless networks (5)
d) Explain the U_m interface of GSM (5)

Q 2)

a) Explain how a Bluetooth network is established using baseband state transitions. (10)

b). Explain Mobile Call termination in GSM, detailing the need and the use of (10)

MSRN , IMSI, TMSI no.s

Q 3)

a) Compare various IEEE 802.11x standards. (a/b/g/i/n etc) (10)

b) Explain the functioning of Mobile -TCP (10)

Q 4)

a) Why does the Mobile IP packet required to be forwarded through a tunnel. (10)
Explain Generic techniques of encapsulation of Mobile IP packet
b) Explain differences in GSM, GPRS and UMTS. (10)

Q 5)

a) Explain UMTS architecture. Explain UTRA –FDD and TDD modes (10)
b) Explain Security issues in wireless communication, typically for cellular networks (10)

Q 6) Short Notes on any 4 (20)

a) Satellite Communication
b) Android framework
c) HIPERLAN 1 Vs HIPERLAN2
d) PSTN
e) Cellular IP

MD-Con. 10379-15.