

Sem VI

20/12/2016

I.T (REGS)

5

A-I-T

Q.P. Code : 595100

(3 Hours)

[Total Marks :80

N.B. : (1) Question No 1 is compulsory; solve any 3 questions from remaining 5 questions.

(2) Assume suitable data wherever necessary.

(3) **Figures to the right indicate full marks.**

1. (a) How does a search engine works ? Also describe architecture of Search Engine ? 10
(b) What you understand by web services. Make a general diagram for any application involving web services. It should show various technologies/ tools used for creating such applications. 10
2. (a) Draw the diagram for AJAX application model and traditional web application model and compare them. 10
(b) Write the code in JavaScript to open a new window when a link on a page is clicked. The new window opened, is closed by placing a button on the window and writing JavaScript code on the On Click event of the button. 10
3. (a) What do you mean by XML? What are its Differences and similarities from HTML & CSS? Also explain the concept of Entities & Attributes in XML? 10
(b) What are the two methods in Ajax to update part of web page? Describe them in detail. 10
4. (a) Describe the significance and working of WSDL with an example. 10
(b) Explain the following AJAX patterns with one example. 10
a. Submission throttling b. Predictive fetch c. Fallback patterns.
5. (a) What is DOM? Draw the detailed DOM objects structure. Explain with its usage. 10
(b) What do you mean by JSON? Why Use JSON over XML? 10
6. (a) What are the advantages/disadvantages of the various style methods ? 5
(b) What is media query ? How is a media query used ? 5
(c) Define and describe mash ups. What are the primary reasons for the success of mashups ? 5
(d) What are the characteristics of REST WSs ? 5

QP Code:594701

(3 Hours)

[Total Marks :80

- N.B. : (1) Question No. 1 is compulsory.
 (2) Attempt any **three** questions from Q.2 to Q.6.

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|----|-----|---|----|
| 1. | (a) | Explain CMM | 5 |
| | (b) | Give difference between Waterfall and Prototype Model | 5 |
| | (c) | List Software Engineering Practice core Principles. | 5 |
| | (d) | Explain following design concepts: Abstraction, Modularity | 5 |
| 2. | (a) | What is agility? Explain XP | 10 |
| | (b) | What is Design? Explain Design Principles | 10 |
| 3. | (a) | Draw control flow graph and find cyclomatic complexity for the following PDL
if(c1 or c2 and c3) s1;
else s2;
while(c4) s3; s4;
do s5; while(c5);
s6 | 10 |
| | (b) | Explain testing strategies | 10 |
| 4. | (a) | How important is requirement analysis. Elaborate on different requirement engineering tasks. | 10 |
| | (b) | For the given Order processing system scenario draw DFD level 0, 1 and 2. The customer can place order, cancel order, do modification in the placed order before it is delivered. The order is delivered to the customer address by the courier company. Customer can make payment for the placed order using credit card or net banking. If customer is not satisfied by the product he can return the product within 15 days from the delivery date. The refund is deposited back to the customer account within 10 days from the date of product return. | 10 |
| 5. | (a) | Explain Refinement, Refactoring and design classes. | 10 |
| | (b) | Explain different architectural styles. | 10 |
| 6. | (a) | Explain Coupling and Cohesion. What is preferred in the component? Why? | 5 |
| | (b) | Identify risk of completing graduation with good marks but without knowledge | 5 |
| | (c) | Explain software quality attributes. | 5 |
| | (d) | Explain change management process. | 5 |

Sem-VI
I.T (CBGS)
Distributed System

29/11/2016

5^a

Q.P. Code : 594803

(3 Hours)

[Total Marks : 80

- N.B. :** (1) Question No.1 is **compulsory**.
(2) Solve **any three** from remaining **five**.
(3) Assume suitable **data** wherever **necessary**.
(4) **Figures** to the **right** indicate **full marks**.

1. Attempt the following (**any four**) : 20
- (a) Compare Stateful and Stateless server implementations.
 - (b) Explain what is a callback RPC.
 - (c) Compare NOS and DOS.
 - (d) List types of failures in message passing system and how to overcome them.
 - (e) Compare Bully Election Algorithm with Ring based election algorithm.
2. (a) Explain the need of distributed deadlock detection algorithms. Explain probe based distributed deadlock algorithm in detail. 10
- (b) What is a thread and advantages of using threads. What are different models for organizing threads. 10
3. (a) Define Happened-Before relationship. Explain implementation of logical clocks with an example. 10
- (b) Describe .NET architecture with peat labeled diagram. 10
4. (a) What are the reasons for migration of code? Explain the various models for code migration. 10
- (b) Explain Distributed Approach for providing mutual exclusion. 10
5. (a) Explain SOA lifecycle with diagram. Also state the advantages of SOA. 10
- (b) How is sequential consistency model implemented if Replicated Migrating Blocks are used in distributed system for Distributed Shared Memory. 10

TURN OVER

Q.P. Code : 594803

2

6. Write notes on following :

- (a) CORBA Components
- (b) Components of EJB framework.
- (c) Explain Message Buffering in IPC
- (d) .NET architecture

20

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System & web Security

Q.P. Code : 594902

(3 Hours)

[Total Marks : 80

N.B. : (1) Question No. 1 is **compulsory**.(2) Attempt any **THREE** Questions out of remaining **FIVE** questions.

1. (a) Give two techniques to establish a covert channel. 5
 - (b) Compare and contrast discretionary access control and mandatory access control. 5
 - (c) Define with examples i) SQL injection ii) Cross-site scripting. 5
 - (d) What are the different phases of a virus? Explain. 5
 2. (a) What are the different kinds of malware? How do they propagate? 10
 - (b) Explain RSA algorithm for public key encryption. Given modulus $N = 143$ and public key $= 7$, find the values of p , q , $\phi(n)$, and private key d . Can we choose value of $e=5$? Justify. 10
 3. (a) What is a firewall? Explain different types of firewalls and specify at which layer of the Internet stack do they operate? 10
 - (b) What is a denial of service attack? Discuss different ways in which an attacker can mount a DOS attack. 10
 4. (a) Distinguish between the ESP and AH protocol in IPSec. Show the working of each in transport and tunnel mode. 10
 - (b) What is an IDS? How does it differ from a honeypot? Discuss the different types of IDS. 10
 5. (a) Explain the process of generation and verification of digital certificate. 10
 - (b) With respect to SSL protocol explain the following:- 10
 - (i) Generation of master Key
 - (ii) Authentication of server to client.
 6. Write short notes on (**any four**) : 20
 - (a) Windows Security
 - (b) Federated Identity Management
 - (c) Software Reverse Engineering
 - (d) Knapsack cryptosystem
 - (e) Non-malicious programming errors
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Q.P. Code : 595001

(3 Hours)

[Total Marks : 80

- N.B. :** (1) **Q1 is compulsory.**
(2) Attempt any **three** from the remaining.
(3) Assume suitable data.

1. (a) Define "Data Mining". Enumerate five example applications that can benefit by using Data Mining. **5**
- (b) Clearly explain the data preprocessing phase for data mining. **5**
- (c) Describe one hierarchical clustering algorithm using an example dendrogram. **5**
- (d) Explain the concept of a decision support system with the help of an example application. **5**
2. (a) Partition the given data into 4 bins using Equi-depth binning method and perform smoothing according to the following methods. **10**
Smoothing by bin mean
Smoothing by bin median
Smoothing by bin boundaries
- Data: 11,13,13,15,15,16,19,20,20,20,21,21,22,23,24,30,40,45,45, 45, 71, 72, 73, 75
- (b) For the same set of data points in question 2. (a) **10**
(a) Find Mean, Median and Mode.
(b) Show a boxplot of the data. Clearly indicating the five- number summary.

[TURN OVER

3. (a) The table below shows a sample dataset of whether a customer responds to a survey or not. **"Outcome"** is the class label. 10
 Construct a Naive Bayes' Classifier for the dataset. For a new example **(Rural, semidetached, low, No)**, what will be the predicted class label?

District	House Type	Income	Previous Customer	Outcome
Suburban	Detached	High	No	Nothing
Suburban	Detached	High	Yes	Nothing
Rural	Detached	High	No	Responded
Urban	Semi-detached	High	No	Responded
Urban	Semi-detached	Low	No	Responded
Urban	Semi-detached	Low	Yes	Nothing
Rural	Semi-detached	Low	Yes	Responded
Suburban	Terrace	High	No	Nothing
Suburban	Semi-detached	Low	No	Responded
Urban	Terrace	Low	No	Responded
Suburban	Terrace	Low	Yes	Responded
Rural	Terrace	High	Yes	Responded
Rural	Detached	Low	No	Responded
Urban	Terrace	High	Yes	Nothing

- (b) Briefly explain Regression based Classifiers 10

Q.P. Code : 595001

3

- 4. (a) Use the Apriori algorithm to identify the frequent item-sets in the following database. Then extract the strong association rules from these sets. **10**

Min. Support = 30% Min. Confidence = 75%

TID	Items
01	A, B, D, E, F
02	B, C, E
04	A, B, D, E
04	A, B, C, E,
05	A, B, C, D, E, F
06	B, C, D
07	A, B, D, E

- (b) Explain multidimensional and multi level Association rules with examples. **10**

- 5. (a) What is clustering? Explain k-means clustering algorithm. Suppose the data for clustering is {2,4,10,12, 3,20,11,25} Consider k = 2, cluster the given data using K-means algorithm **10**
- (b) What is an outlier? Describe methods that can be used for outlier analysis. **10**

- 6. (a) Consider the following case study: A telecom company wants to analyze and improve its performance by introducing a series of innovative mobile payment plans. For this case study design a BI system, clearly explaining all steps from data collection to decision making. **10**
- (b) Clearly explain the working of the DBSCAN algorithm using appropriate diagrams. **10**
