

3 Hours)**[Total Marks 80]**

- i. Q. 1. is Compulsory.**
- ii. Attempt any three from the remaining.**
- iii. Assume suitable data.**

- Q. 1** (a) Explain Regression based classifier (5)
- (b) What is Data Preprocessing? Explain the different methods for the Data Cleansing phase (5)
- (c) What is hierarchical clustering? Explain any two techniques for finding distance between the clusters in hierarchical clustering. (5)
- (d) Define “Data mining”, Enumerate five example applications that can benefit by using Data Mining (5)
- Q. 2** (a) Explain clearly working of DBSCAN using appropriate diagrams (10)
- (b) Explain Data mining as a step in KDD. Give the architecture of typical Data Mining system (10)
- Q. 3** (a) Explain BIRCH algorithm with example (10)
- (b) Explain different visualization techniques that can be used in data mining (10)
- Q. 4** (a) Explain Multilevel association rules with suitable examples (10)
- (b) Define classification, issues of classification and explain ID3 classification with example (10)
- Q. 5** (a) Explain Bagging and Boosting of classifiers (10)
- (b) Explain Box plot summary with example (10)
- Q. 6** (a) Explain Business Intelligence Issues (10)
- (b) What is clustering? Explain k-means clustering algorithm. Suppose the data for clustering – {2, 4, 10, 12, 3, 20, 11, 25} Consider k=2, cluster the given data using above algorithm. (10)

Q. P. Code: 25301**Time 3 hours****Marks 80**

**Note: Question No. 1 is Compulsory
Attempt any 3 Questions from the Remaining Questions.**

- Q1** **20**
- Define Software Engineering and explain Software Process Framework
 - What is CMM? Explain its different levels
 - What is agile development? What are its advantages
 - What is the role of analysis and design in software development
- Q2**
- What is Prescriptive Model? Explain Waterfall and Incremental Model. How are they different **10**
 - Explain Component Based Development and Formal Methods Model **10**
- Q3**
- What is agility? Explain its principles **10**
 - Explain XP **10**
- Q4**
- Explain core principles of Software Engineering Practice **10**
 - For "Assignment Management System" formulate problem statement. For the formulated problem statement draw Use Case Diagram and Activity diagram for each use case **10**
- Q5**
- Explain design concepts in brief **10**
 - Explain quality guidelines and quality attributes of software design **10**
- Q6**
- Define Risk. Identify two risks for your final year examination and prepare RMMM plan **10**
 - What is black box and white box testing. Draw CFG for the given PDL and find cyclomatic complexity. **10**
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if(c1 or c2)
do
s1;
s2;
while(c3)
else
while(c4) s3;
s4;

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Note: 1) Question 1 is compulsory.

2) Solve any 3 questions from remaining questions.

1. a) What is Distributed Denial of Service (Dos) Attack? (5)
- b) Explain Biometric authentication. (5)
- c) Consider an online election system identify vulnerability, threat and attack. (5)
- d) Explain SQL Injection with an example. (5)
  
2. a) Explain the roles of the different Servers in Kerberos Protocol. How does the user get authenticated to the different servers? (10)
- b) Explain different types of firewalls that can be used to secure a network with advantages and disadvantages. (10)
  
3. a) What is Digital Signature? Explain how it is created by sender and verified by receiver. (10)
- b) What is the need of Intrusion Detection System (IDS)? Explain different types of IDS with advantages and disadvantages. (10)
  
4. a) What are the different approaches to Software Reverse Engineering? (10)
- b) Explain secure Email protocols and S/MIME. (10)
  
5. a) List & explain types of Non-Malicious Codes : Buffer Overflow, Incomplete Mediation & Race Conditions. (10)
- b) Explain the TCP/IP Vulnerabilities i.e. layer wise well known attacks. (10)
  
6. Write short notes on **(any four)** (20)
  - a) Cross Site Scripting.
  - b) Digital Rights Management.
  - c) Windows vulnerabilities.
  - d) CIA Security goals
  - e) Federated Identity Management

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3 hours

[80 marks]

N. B. :

- (1) Question no 1 is **compulsory**.
- (2) Attempt **any three** questions out of remaining five.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data wherever necessary.

- Q1. (a) What is name service? What are its goals? How is it implemented? What is directory Service. [10]  
 (b) Discuss in detail about deadlock and locking schemes in concurrency control [10]
- Q2. (a) Explain the issues to be handled while designing DSM? [10]  
 (b) Discuss the difference between light weight processes, thread, and normal process. [10]
- Q3. (a) Compare data centric and client centric consistencies and explain one consistency model of each type. [10]  
 (b) Briefly explain SOA life cycle with proper diagram. Also explain the advantages of SOA. [10]
- Q4 (a) What are the components of CORBA? List the advantages of CORBA. [10]  
 (b) What are the Purpose of WSDL? Explain WSDL document structure using Block diagram. [10]
- Q5. (a) Describe the different approaches for deadlock detection in a distributed computing system. [10]  
 (b) Explain Code Migration & role of mobile agent. [10]
- Q6. White short note on (any two) [20]  
 (a) EJB.  
 (b) The .NET architecture.  
 (c) Distributed protocols.

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Note: 1. Q.1 is compulsory

2. Attempt any 3 from remaining

3. Assume suitable data if necessary.

- Q1 a) What are spiderable link structures? Explain with a suitable example. 10  
b) Explain SWOT analysis. List the factors that determine strengths and weaknesses in SWOT analysis. 10
- Q2 a) Describe the role of the `querySelector()` and `querySelectorAll()` methods in CSS. 10  
b) Explain in detail JSON mashup with diagram. 10
- Q3. a) What are the characteristics of REST WSs? 10  
b) Explain AJAX Web application model. 10
- Q4. a) Make a style sheet in which background color of alternate paragraph should be different. 10  
b) Define and describe mashups. What are the primary reasons for the success of mashups? 10
- Q5. a) Using HTML5 Draw a canvas containing a star. 10  
b) Explain characteristics of RIA. Discuss web services. 10
- Q6. a) What is media query? How is a media query used? 5  
b) What is the role of the hidden field? 5  
c) Explain pagination. List its limitations. 5  
d) List all the elements of a web page. 5
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