1. (a) Discuss different type of production system. What is the characteristics of production system?

2. (b) Write short note on natural Language processing?

OR

(a) Explain monotonic and non-monotonic reasoning with example. Compare them giving advantages and drawback of each.

(b) Write short note on Frames with example.

3. (a) Differentiate between biological neuron and artificial neuron on the basis of structure and function of a single neuron.

(b) Explain Mc Culloch and Pitt’s model.

OR

(a) Write short note on ADALINE and MEDALINE.

(b) Write short note on AI vs ANN.

4. (a) Explain the architecture and working of counter propagation network in interpolative mode.

(b) Explain the signification of hidden layer. How it is useful in pattern recognition and control problem?
(a) What is interpolative mode of counter propagation network?

(b) Explain the limitation of back propagation learning. Describe the Boltzmann machine.

5. (a) With suitable block diagram, explain the working principle of FIS.

(b) What is the different property of fuzzy sets?

OR

(a) Define Crisp sets with its fundamental concept.

(b) Mention the operation performed on crisp relation.

6. (a) Discuss the following –
   (i) Permutation Encoding
   (ii) Value Encoding
   (iii) Tree Encoding

(b) Explain MLP problem with linear activation function.

OR

(a) What are the application of genetic algorithm?

(b) Write short on –
   (i) NETTALK
   (ii) Specific heat methods
   (iii) Neocognitron
1. (a) Write short note on hill climbing. with neat sketch problem associated with hill climbing algorithms.

(b) Explain the various problems in representing knowledge.

OR

(a) Construct a script for going to a restaurant from the view point to the customer.

(b) Convert the following sentences to predicate logic-
   (i) Marcus was a man
   (ii) All man are mortal
   (iii) No mortal lives longer than 150 years.

2. (a) Describe the taxonomy of neural network.

(b) What is the use of bias input?

OR

(a) Differentiate the supervised and unsupervised learning.

(b) Derive the weight change expression for the weight between hidden and output layer in EBPA network. Consider hyperbolic tangent function as the activation function. Use momentum factor in your weight adjustment formula.
3.  (a) What is the signification of Widrow’s learning for linear associative network?
(b) Discuss the application of recurrent network.

OR

(a) State the training procedure of Kohonen layer and Grossberg layer in counter propagation network.
(b) Write short note on Cauchy machine.

4.  (a) Discuss the basic or standard fuzzy sets operation.
(b) What is decision making? What are its steps?

OR

(a) Explain multiattribute decision making.
(b) List the various application of FLC system.

5.  (a) Discuss the categorization of bit-wise operators.
(b) Describe tournament selection strategy.

OR

(a) Explain binary encoding for knapsack problem in detail.
(b) What do you understand by fitness function?
Web Engineering

**Time: 3 Hours**

**MM: 100**

**Note:** 1. Attempt any five questions. Each question carries equal marks.

**Q.1**

a) What is search engine & also write down the criteria to selecting the search engine & discuss about the Meta search engine.

b) Compare and contrast the Netscape and Microsoft browser.

**OR**

a) What is IIS? & discuss in brief the service supported by IIS.

b) Discuss the feature of Web server & explain caching in detail.

**Q.2**

a) Describe high-level architecture blueprints in Web Applications.

b) Discuss briefly the website design issues.

**OR**

a) Explain in brief contextual navigation and discuss in detail the supplemental navigation systems.

b) Describe the basic search system anatomy. Explain different retrieval algorithm

**Q.3**

a) Explain how database is integrated using PHP and Mysql.

b) What are cascading styles sheets (CSS).

**OR**

Write short note on the following-

a) Inline style sheets

b) Embedded style sheets

c) External style sheets

**Q.4**

a) Explain the concept of web services. Discuss the issues and applications in web Services.

b) What is e-commerce? How it differ from e-business?

**OR**

Write short notes on the following internet application to electronic commerce:

a) Newsgroup

b) WAIS

c) Gopher

d) Agents.
Q.5 Write short note on following (Any four):
   a) Digital Signature and firewalls       b) Cybercrime and law.
   c) PHP                                   d) ASP
   e) New operator in jsp
CS-802
Model Test Paper -II
Web Engineering

Time: 3 Hours
MM: 100

Note: 1. Attempt any five questions. Each question carries equal marks.

Q.1  
a) What is Web engineering and discuss its applications?

b) Discuss the history of Web development and also write down the category of Web application.

OR

a) Discuss the Web application versus conventional software.

b) Discuss the various types of E-mail protocols.

Q.2  
a) Define information architecture and also discuss the role of information architects.

b) Discuss the Requirement engineering in Web applications.

OR

Explain the following organization structures-

a) Hierarchy

b) Database model

c) Hypertext

Q.3  
a) what are the common anchors attributes. Discuss the TAB INDEX and TARGET attributes for anchor element.

b) Discuss the various image file format.

OR
a) Explain in detail about the \texttt{<table>} tag. Also explain all its attributes and related tags with examples.
b) How do we provide audio and video support with HTML.

**Q.4**

a) What is XML? Discuss about XML vs HTML

b) Discuss the relationship between HTML, SGML, and XML.

**OR**

a) Explain fully rules and reasoning with proper methods.
b) Describe the artificial intelligence and related techniques applied to semantic web.

**Q.5**

Write short note on following (Any Four):

a) Phases of Web site Development.
b) Cookies
c) Online Security and payment system
d) Web effort estimation
e) JSP
CS-840
Model Test Paper –I
Data Warehousing & Mining

Time: 3 Hours
MM: 100

Note: 1. Attempt any five questions. Each question carries equal marks.
Note-Attempt any five question. All question carry equal marks.

1. (a) Define the term 'Data Mining'. What are differences between data mining strategies and data mining techniques? Explain with examples.
   (b) Write differences between the following
   (i) Supervised learning and unsupervised learning
   (ii) Training data and test data
   (iii) Prediction and summarization
   (iv) KDD vs DM

   OR

2. (a) What are the limitations of data mining? What kind of answers we can and we cannot expect from a data mining algorithm application?
   (b) Write the differences and similarities between the following
   (i) Discrimination and prediction
   (ii) Characterization and clustering
   (iii) DBMS and DM
3. (a) What are the differences between the three main types of data warehouse usage: information processing, analytical processing, and data mining? Also discuss OLAP mining (OLAM).

(b) Describe the following terms with examples:

(i) Data cube
(ii) Data warehouse architecture

OR

4. (a) What are the different ways to classify data?

(b) Explain about the following:

(i) Warehouse schema
(ii) Metadata and its types

OR

5. (a) Why preprocessing of data is required? What are the various forms of data preprocessing?

(b) Using the information ahead below, draw the following curves

(i) Quantile plot
(ii) q-q plot
(iii) Scatter plot
(iv) Loess curves

<table>
<thead>
<tr>
<th>Unit Price (Rs.)</th>
<th>Items Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>275</td>
</tr>
<tr>
<td>43</td>
<td>400</td>
</tr>
<tr>
<td>47</td>
<td>250</td>
</tr>
<tr>
<td>74</td>
<td>360</td>
</tr>
<tr>
<td>75</td>
<td>520</td>
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<tr>
<td>78</td>
<td>560</td>
</tr>
<tr>
<td>115</td>
<td>310</td>
</tr>
<tr>
<td>117</td>
<td>280</td>
</tr>
<tr>
<td>120</td>
<td>390</td>
</tr>
</tbody>
</table>

OR

6. (a) What is data cleaning? Explain basic methods of data cleaning.

(b) Describe various forms of Data Normalization. Also specify their value ranges.

7. (a) What is market basket analysis? Write a priori algorithm. Also demonstrate the working of a priori algorithm.

(b) Describe the principle of pruning in level-wise algorithms. What is its importance?

OR

8. (a) Describe association rule with item constraint. What is the problem with it? Propose a method for this.

(b) A database has five transactions. Let min. sup = 60% and min. conf. = 80%
Find all frequent itemsets using apriori
List all of the strong association rules (with support S and confidence C) matching the following meta rule, where X is a variable representing customers and item denotes variables representing items
for all x ∈ transaction, buys (X, item₁) A buys (X, item₂) buys (X, item₃) [S, C]

9. (a) What are the advantages and disadvantages of Naive-Bayes algorithm compared to C4.5 algorithm?

(b) Define the following terms:
   (i) K-clusters
   (ii) Intra-attribute summary
   (iii) Cluster projection

OR

10. (a) What are the different methods of computing the best split? What is Gini Index? What are entropy gain and gain ratio?

(b) The accompanying data provide information about 12 customers with attributes age and income:
   (21, 21) (22, 26) (25, 35) (27, 24) (27, 18) (29, 15)
   (32, 27) (35, 24) (37, 56) (37, 29) (38, 56) (40, 23)

Assume an Euclidean distance measure and use the K-means clustering algorithm to identify these clusters starting with the three means: (27, 24) (29, 15) (22, 26). Sketch the clustered graph.
1. (a) What is a Data Warehouse? How is a DW different from a database?

(b) Discuss the major challenges in DM regarding DM methodology & performance issues.
2. (a) What do you understand by DM? Discuss the role of DM as a step in knowledge discovery process.

(b) Explain in brief the major components of a typical DM system architecture.

3. (a) Discuss various types of OLAP servers. How are the data actually stored in different server architectures?

(b) Differentiate between Star & Snowflake schemas with the help of examples.

Or

4. (a) What do you understand by Partial materialization? What the significance of Partial materialization is as compared as compared to the Full materialization of the data cube?

(b) What are the differences among the three main types of DW usage, information processing, analytical processing & DM?

5. (a) Discuss in brief, why do we pre-process data in DM?

(c) What do you understand by Concept Hierarchy generation? Discuss it in case of numeric data & categorical data.

Or

6. (a) Propose an algorithm in pseudo-code for automatic generation of a Concept Hierarchy for categorical data based on the number of distinct values of attributes the given schema.

(b) Discuss why analytical categorization is needed & how it can be performed?

7. (a) Write the A-priori algorithm for discovering frequent item sets for mining single dimensional Boolean Association Rule & explain it with the help of an example.

(b) Differentiate between Multi-level & Multi-dimensional Association Rule.

Or

8. (a) What do you understand by ARM? Discuss partitioning approach for Association mining.

(b) Explain FP growth algorithm for mining Association Rule in large databases.
9. What are the different methods of classification? Explain any two.

Or

10. (a) What are the different categories of clustering methods?

(b) Differentiate between k-means & k-medoid partitioning methods.
Q.2 Explain multiple access with collision avoidance in ad-hoc MAC protocol

OR

(i) Discuss hidden terminal problem in ad-hoc channel access.

(ii) Explain the shortcomings of RTS-CTS solution for hidden terminal problem.

Unit-III

Q.3 Explain destination sequential distance vector routing protocol with advantage and disadvantage.

OR

Discuss dynamic routing protocol.

Q.4 (i) Discuss end to end delay performance in ad-hoc wireless network.

(ii) Describe the power management at various layer.

OR

(i) Discuss advantage and disadvantage of packet switching and circuit switching.

(ii) Discuss frame relay sequence with its advantage and disadvantages.

Q.5 What are mail services provided by 802.11 standard? Explain in Detail.

OR

What is ATM adaption layer? Also explain its services.
CS-8304
Model Test Paper -II
Mobile Ad-hoc & High Speed Network

Time -3 Hrs

Note-Attempt any five question. All question carry equal marks.

Unit-I

Q.1 Describe ad-hoc wireless network in detail. Also discuss its characteristics.

OR

(i) Discuss hidden terminal problem in ad-hoc channel access.
(ii) Explain Bluetooth in detail

Unit -II

Q.2 (i) Discuss communication throughput performance in ad-hoc wireless network.

OR

(ii) What are functions provide by ACPI?

Unit –III
Q.3 Explain signal stability routing with its advantage and disadvantage.

   OR

   Explain the ad-hoc on demand distance vector routing.

Unit IV

Q.4. Discuss main application of wireless LAN in details.

   OR

   Explain the control signaling for VCC/VPC in establishment and release connection.

Unit-V

Q.5. Compare the X.25 and frame relay protocol architecture.

   OR

   What do you mean by ATM ? How does it support data transfer?