

TEC(IT) / SEM VI / R-19 / FH-2024 / 15-05-2024

Duration: 3hrs

[Max Marks: 80]

- N.B. : (1) Question No 1 is Compulsory.
 (2) Attempt any three questions out of the remaining five.
 (3) All questions carry equal marks.
 (4) Assume suitable data, if required and state it clearly.

Q.1 [20]

- A List out stages in Data Mining with neat labelled diagram.
 B A sales firm has reported following sales figures for FY 23-24 (i.e. March 23 to Feb 24)
 2300, 435, 675, 543, 454, 7877, 5434, 345, 2342, 654, 567, 545.
 Show how to normalize this data series using Min-Max scaling.
 C With an example explain Star Versus Snowflakes schema in dimensional modelling
 D What is market basket analysis? Explain with a real use case.

Q.2 A Draw and list the components of a typical Data warehouse architecture [10]

- B Consider we have age of 35 participants in a survey given to us in sorted order.
 5, 10, 13, 13, 15, 16, 16, 20, 20, 20, 21, 22, 22, 22, 25, 25, 25, 25, 30, 30, 33, 33, 33, 35, 35, 35, 35, 36, 40, 45, 46, 52, 52, 70, 85.
 Draw histograms for this data taking bin size as 5 and 8. Explain the effect of bin size on the histograms you obtain.

Q.3 A What is OLAP? Explain various OLAP operations with neat labeled diagram [10]

- B Explain working of decision tree based classifier? With an example explain steps for inducing tree using ID3 algorithm. [10]

Q.4 A Use the Apriori algorithm to identify the frequent item-sets in the following database. [10]

Tid	a	b	c	d	e	f	g
Items	1,2,4,5,6	2,3,5	1,2,4,5	1,2,4,5	1,2,3,4,5,6	2,3,4	1,2,4,5

Consider Minimum Support as 75% and confidence at 85% level. Write down all strong association rules.

- B What is an outlier? Explain various methods for performing outlier analysis. [10]

Q.5 A Explain steps in hierarchical Clustering algorithm. Perform hierarchical clustering on following data that represents 10 points in 2 D space
 (2,3), (5,4), (9,6), (4,7), (8,1), (7,2), (6,3), (1,9), (3,6), (4,8). [10]

Consider you require 3 clusters.

- B Explain mining of Multilevel association rules and Multidimensional association rules. [10]

Q.6 Write short note on following (Any 4) [20]

- A Navie Bayes Classifier.
 B Boot Straping
 C BIRCH Algoirhm.
 D BI Architecures
 E Types of attributes

(3 Hours.)

Marks = 80

NB:

1. Question No. 1 is compulsory and solve any THREE questions from remaining questions.
2. Assume suitable data if necessary.
3. Draw clean and neat diagrams.

- Q1. Attempt any four
- a. Compare and contrast Web 1.0, Web 2.0 and Web 3.0? 5
 - b. What is Content Management System (CMS) 5
 - c. Explain steps involved in Web Analytics Process. 5
 - d. State the advantages and disadvantages of Joomla. 5
 - e. State four significant N-Triples language. 5
- Q2. a. What does REST Stand for? Explain REST API with a basic flow diagram. 10
- b. Explain the following built in Angular JS Directives with example. 10
- a) ng-app
 - b) ng-init
- Q3. a. Discuss any 5 built-in helper functions in AngularJS. 10
- b. Explain Flask templates with an example. 10
- Q4. a. Explain the working of MongoDB and Applications of MongoDB. 10
- b. With the help of diagram explain process involved in AJAX Asynchronous Model. 10
- Q5. a. What are the HTTP Methods provided by Python Flask? 10
- b. Explain Drupal's architecture with its advantages. 10
- Q6. a. Explain different characteristics of RIA in details. 10
- b. Discuss definite and indefinite loops with suitable examples in Typescript. 10

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QP code: 55935

Time: 3 HRS

Marks: 80

Note: 1. Q. No1 is compulsory

2. Solve any three questions out of the remaining five

Q.No1 Solve any four

(20)

- Give the Features of VANET and MANET
- Compare Infrastructures based Network and an Adhoc Network
- Outline the method that supports mobility in CISCO Unified Wireless Network
- Explain WEP and the security standard used
- Explain LoraWAN

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- Explain the spread spectrum and briefly outline DSSS and FHSS (10)
- Illustrate and explain GSM architecture with its interfaces. Compare GSM and UMTS (10)

- Outline the WSN architecture along with neat diagrams. State the various issues in WSN (10)
 - Illustrate the RF site survey process and their importance in the design process of designing a wireless network with Lightweight AP and WLC (10)

- State different features of Zigbee and explain its protocol stack (10)
 - Draw and Explain Wi-Fi Architecture and Protocol Architecture (10)

5.

- Draw and explain OFDMA with a neat diagram (10)
- State the Features of Wi-MAX. Draw and explain the architecture of Wi-MAX (10)

6.

- Explain UMTS and GSM security (10)
- Compare and contrast 1G to 5G based on the technological differences and advancements. Write a short note on Massive MIMO (10)

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29/05/2024

Time: 3 Hours

Marks: 80

OP code : 56053

N.B.: (1) Question No.1 is compulsory.

(2) Attempt any three questions from the remaining five questions.

(3) Make suitable assumptions wherever necessary but justify your assumptions.

1. (a) Explain Hackers, Crackers, Phreakers. 05
(b) Explain role of Computer Security Incident Response Team 05
(c) What are different forensic image formats. 05
(d) What is Redundant Array Inexpensive Disk. 05
2. (a) Describe the method for recovering deleted files from windows system. 10
(b) Write Malware handling in detail. 10
3. (a) What is intrusion detection system? Explain. 10
(b) What is file system and explain forensic analysis of file system. 10
4. (a) Explain various guidelines for report writing. 10
(b) Explain in detail the task of hardware forensic tool. 10
5. (a) Write a short note on different types of scanning tools. 10
(b) Explain different types of digital forensics? 10
6. Write a short note on (Any Two) 20
(1) Illustrate investigation of web browser.
(2) Describe forensic duplication of Hard drive.
(3) Explain the steps in router investigation.

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