Hall Ticket Number:

COMR1(R20)

B.TECH. DEGREE EXAMINATION, OCTOBER-2022

Semester IV [Second Year] (Regular)

INTRODUCTION TO INTERNET OF THINGS

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following in brief:
   (a) List any four applications of IoT. CO1
   (b) Write about IoT communication APIs. CO1
   (c) Give the list of different functional blocks in IoT. CO1
   (d) What are the various challenges in IoT design? CO2
   (e) Define actuator. CO2
   (f) List different sensing devices. CO2
   (g) What is the use of an A/D converter? CO3
   (h) Define Embedded System. CO3
   (i) List the characteristics of Embedded Systems. CO3
   (j) What are the components of Embedded Systems? CO4
   (k) Give the features of Arduino UNO. CO4
   (l) List the basic components of Raspberry pi. CO4
   (m) What are the various operating systems for Raspberry pi? CO4
   (n) Define smart agriculture. CO4

UNIT – I

2. (a) Discuss about enabling technologies in IoT. (7M) CO1
   (b) Explain domain model specification for home automation IoT system. (7M) CO1

(OR)

3. (a) Define IoT and explain the characteristics of IoT. (7M) CO1
   (b) Discuss about IoT protocols in detail. (7M) CO1

UNIT – II

4.	(a)	Discuss the working principle of the sensor in detail.	(7M) CO2
	(b)	Explain about the vision system in sensors.	(7M) CO2

(OR)

5.	(a)	Discuss the importance of sensor fusion in IoT.	(7M) CO2
	(b)	Differentiate sensor and actuator.	(7M) CO2

UNIT – III

6.	(a)	List and explain the applications of Embedded Systems.	(7M) CO3
	(b)	Explain the purpose of Embedded Software.	(7M) CO3

(OR)

7.	(a)	Discuss the design process of Embedded Systems.	(7M) CO3
	(b)	Explain the design life cycle of Embedded Systems.	(7M) CO3

UNIT – IV

8.	(a)	Explain various basic and LCD commands in Arduino.	(7M) CO4
	(b)	Explain weather monitoring system in IoT applications.	(7M) CO4

(OR)

9.	(a)	Explain the steps in Raspberry pi OS installation.	(7M) CO4
	(b)	What is the role of IoT for the development of cities?	(7M) CO4

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Hall Ticket Number:

CSH11(R20)

B.TECH. DEGREE EXAMINATION, OCTOBER-2022

Semester IV [Second Year] (Regular)

ADVANCED DATA STRUCTURES

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following in brief:
   (a) Mention what is the purpose of Hashing. CO1
   (b) List the collision resolution techniques. CO1
   (c) What is primary clustering? CO1
   (d) What is the need for Splaying? CO2
   (e) Define Randomised Data Structure. CO2
   (f) What is Skip list? CO2
   (g) Is B-tree a Multi-way search tree? CO3
   (h) (2,4) tree is a self balancing tree. State True/False. CO3
   (i) What is the colour of null nodes in the Red black tree? CO3
   (j) What is the purpose of tries? CO4
   (k) Define Text similarity. CO4
   (l) Which property is used in Knuth-Moris –Pratt algorithm? CO4
   (m) Define tries. CO4
   (n) Write the two approaches in Boyer Moore algorithms. CO4

UNIT – I

2. (a) Consider a hash table with slots. The hash function is h(k) = k mod 9. The collisions are resolved by Separate Chaining. The following nine keys are to be inserted in the order: 5, 28, 19, 15, 20, 33, 12, 17 and 10. (7M) CO1
   (b) Explain Open Addressing with suitable example. (7M) CO1

(OR)

3. (a) What is Double hashing. Explain in which scenario double hashing is used with an example. (7M) CO1
   (b) Explain the major issues faced in Open Addressing technique. (7M) CO1

UNIT – II

4. (a) Compare and Contrast AVL trees and Splay trees. (7M) CO2
   (b) Explain the advantages of skip lists over linked lists. (7M) CO2

(OR)

5. Explain different rotations of AVL trees with appropriate example. CO2

UNIT – III

6. (a) Insert the following keys: 4, 6, 12, 15, 3, 5, 17 into a 2-4 tree in the order of their occurrence. Show the resulting tree after each insertion. (7M) CO3
   (b) Delete 15 from the above 2-4 tree in 6(a) and show the resulting tree. (7M) CO3

(OR)

7. (a) Draw Huffman tree for the following frequency table and mention the Huffman code for each character. (7M) CO3

Character	Frequency
a	5
b	9
c	12
d	13
e	16
f	45

   (b) Draw a suffix trie for the following set of strings {bear, bell, bid, bull, buy, sell, stock, stop}. (7M) CO3

UNIT – IV

8. Compare Brute force Pattern matching and Boyer Moore algorithms with an example. CO4

(OR)

9. (a) Explain Two-dimensional Range Searching with an example. (7M) CO4
   (b) Construct a priority search tree for the following set of points assuming a 16 x 16 bounding box.
   { (46, 32), (63, 73), (87, 66), (83, 92), (44, 41), (64, 74), (46, 35), (45, 24)} (7M) CO4

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CSH11(R20)

Hall Ticket Number:

VLMR1(R20)

B.TECH. DEGREE EXAMINATION, OCTOBER-2022

Semester IV [Second Year] (Regular)

HDL PROGRAMMING

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following in brief:
   (a) What is the difference between wire and reg types? CO1
   (b) What are blocking and non blocking statements in Verilog? CO1
   (c) What is a continuous assignment? CO1
   (d) What is the difference between combinational logic and sequential logic? CO2
   (e) Define synthesis. CO2
   (f) What is an event control expression? CO2
   (g) What is the difference between Mealy and Moore finite state machine? CO3
   (h) Draw Y chart representation of logic synthesis. CO3
   (i) What are the uses of Verilog multiplexers? CO3
   (j) What are CPLD's? CO4
   (k) Write the HDL program for a sequential statement (D-Flip Flop). CO4
   (l) What are the different methods of programming of PALs? CO4
   (m) State PLI. CO4
   (n) What do you understand about the Sensitivity list? CO4

UNIT – I

2. (a) Design a 16-bit ripple carry adder using four 4-bit ripple carry adders and write Verilog code for the same. (7M) CO1

(b) Explain about Verilog gate delays with an example. (7M) CO1

(OR)

3. (a) Explain about expressions in Verilog. (7M) CO1
   (b) Write test bench code for half adder. (7M) CO1

UNIT – II

4. (a) Write Verilog code for 2-bit magnitude comparator using cyclic behavioural model. (7M) CO2
   (b) Explain in detail about data types for behavioral modelling in Verilog. (7M) CO2

(OR)

5. (a) Explain about propagation delay for continuous assignments. (7M) CO2
   (b) Explain about D-Flip Flop and Transparent Latch with an example. (7M) CO2

UNIT – III

6. (a) Explain about encoder and decoder with an example. (7M) CO3
   (b) Write Verilog code for 4-bit shift register with the help of non blocking assignment statements. (7M) CO3

(OR)

7. Explain about up-down and mod n counters with neat diagrams. CO3

UNIT – IV

8. (a) Explain the synthesis of combinational logic with an example. (7M) CO4
   (b) Explain about synthesis of three state devices and bus interfaces in Verilog. (7M) CO4

(OR)

9. (a) Explain the implementation of PLA and its applications. (7M) CO4
   (b) Design a ROM based state machine to convert BCD to Excess-3 code converter and write Verilog code for it. (7M) CO4

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Hall Ticket Number:

CCMR1(R20)

B.TECH. DEGREE EXAMINATION, OCTOBER-2022

Semester IV [Second Year] (Regular)

PRINCIPLES OF CLOUD COMPUTING

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following in brief:
   (a) What is virtualization? CO1
   (b) Define cloud computing. CO1
   (c) Give some examples of Web 2.0 applications. CO1
   (d) Give a short note on Microsoft Azure. CO2
   (e) Differentiate between full virtualization and partial virtualization. CO2
   (f) What are the characteristics of virtualized environments? CO2
   (g) What is Xen? CO3
   (h) What kinds of needs are addressed by heterogeneous clouds? CO3
   (i) What does the acronym SaaS mean? How does it relate to cloud computing? CO3
   (j) What does Infrastructure-as-a-Service refer to? CO4
   (k) What are the fundamental components introduced in the cloud reference model? CO4
   (l) What is a bucket? What type of storage does it provide? CO4
   (m) What is Salesforce.com? CO4
   (n) What is AWS? What types of services does it provide? CO4

UNIT – I

2. (a) What are the characteristics and benefits of cloud computing? (7M) CO1

(b) Discuss RPC and how it enables inter process communication. (7M) CO1

(OR)

3. (a) Briefly summarize the challenges still open in cloud computing. (7M) CO1
   (b) Explain Utility oriented computing. (7M) CO1

UNIT – II

4. (a) Explain different types of virtualization. (7M) CO2
   (b) Discuss the reference model of full virtualization. (7M) CO2

(OR)

5. (a) Discuss the architecture of Hyper-V and its use in cloud computing. (7M) CO2
   (b) What are the benefits of virtualization in the context of cloud computing? (7M) CO2

UNIT – III

6. (a) Discuss about Software as a Service (SaaS). (7M) CO3
   (b) Differentiate between public clouds and private clouds. (7M) CO3

(OR)

7. Describe the fundamental features of the economic and business model behind cloud computing. CO3

UNIT – IV

8. (a) What are the differences between Amazon SimpleDB and Amazon RDS? (7M) CO4
   (b) Discuss the compute services offered by AppEngine. (7M) CO4

(OR)

9. (a) What are the types of applications that can benefit from cloud computing? (7M) CO4
   (b) Describe how cloud computing technology can be applied to support remote ECG monitoring. (7M) CO4

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CCMR1(R20)

Hall Ticket Number:

FSMR2(R20)

B.TECH. DEGREE EXAMINATION, OCTOBER-2022

Semester IV [Second Year] (Regular)

CLIENT SIDE SCRIPTING

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following in brief:
   (a) What is the difference between HTML and HTML5? CO1
   (b) What is a hyperlink? Does it only apply to text? CO1
   (c) What is a void Element in HTML5? CO1
   (d) Mention the CSS function which allows us to perform calculations? CO2
   (e) List the ways in which JavaScript code can be added to HTML CO2
   (f) What keyword is used to check whether a given property is valid or not? CO2
   (g) How does the comments specified in XML? CO3
   (h) What does the JavaScript Interpreter do upon encountering empty statements? CO3
   (i) Mention the features of AJAX CO3
   (j) Which method cancels the current request in AJAX? CO4
   (k) What is meant by client-side caching? CO4
   (l) Which sign is used as a shortcut for JQuery? CO4
   (m) What does the syntax $("p.para") will select? CO4
   (n) Can we use multiple document.ready() function on the same page? CO4

UNIT – I

2. (a) Design a form with all new HTML5 input types along with their attributes. (7M) CO1

(b) Write a HTML program to display the text along with its shadow effect and its text stroke using external CSS. (7M) CO1

(OR)

3. (a) Write a HTML5 program to display a webpage with four divisions. (7M) CO1
   (b) Write a JavaScript program to find whether the given number is armstrong or not by accepting the input from the user. (7M) CO1

UNIT – II

4. (a) Write a JavaScript program to find the most frequent item of an array. (7M) CO2
   (b) Discuss how to use timer and dynamic styles to create animated effects. (7M) CO2

(OR)

5. (a) Write a HTML program to fill colour inside a rectangular shape in canvas. (7M) CO2
   (b) Explain how to draw Linear Gradients and Radial Gradients. (7M) CO2

UNIT – III

6. (a) Differentiate between client side scripting and server side scripting. (7M) CO3
   (b) Explain with suitable examples: (i) Exception Handling (ii) Call back function. (7M) CO3

(OR)

7. (a) Discuss in detail about HTTP transactions. (7M) CO3
   (b) Explain the basic building blocks of an XML. (7M) CO3

UNIT – IV

8. (a) Write a JQuery code to validate the fields of HTML form. (7M) CO4
   (b) Explain the methods that assist you in manipulating HTML and text content in JQuery. (7M) CO4

(OR)

9. (a) How do you create a custom event handler in JQuery and send the data to custom event handler? Explain. (7M) CO4
   (b) Write a JQuery code to limit character input in the textarea. (7M) CO4

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FSMR2(R20)

Hall Ticket Number:

CSMR4(R20)

B.TECH. DEGREE EXAMINATION, OCTOBER-2022

Semester IV [Second Year] (Regular)

RELATIONAL DATABASE MANAGEMENT SYSTEMS

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following in brief:

(a)	Data model.	CO1
(b)	Physical data.	CO1
(c)	Server application.	CO1
(d)	Multivalued attributes.	CO2
(e)	Entity set.	CO2
(f)	Strong relationship.	CO2
(g)	List DML commands.	CO3
(h)	Differentiate primary key and super key.	CO3
(i)	What is a view?	CO3
(j)	Write syntax for select command.	CO4
(k)	Atomicity property of a transaction.	CO4
(l)	Functional Dependency.	CO4
(m)	Transaction schedule.	CO4
(n)	Serializability.	CO4

UNIT – I

2.	(a)	What are the disadvantages of traditional file based data storage systems?	(7M)	CO1
	(b)	Draw the architecture of DBMS and explain.	(7M)	CO1

(OR)

3.	(a)	Explain various data models with suitable examples	(7M)	CO1

(b) How data independence is achieved through DBMS? (7M) CO1

UNIT – II

4. (a) What is an attribute? Explain different types of attributes with examples. (7M) CO2
   (b) Explain about different relationship types in an ER diagram. (7M) CO2

(OR)

5. Draw an ER diagram for Banking system database. CO2

UNIT – III

6. (a) List and explain DDL commands with examples. (7M) CO3
   (b) Explain about updatable views in SQL. (7M) CO3

(OR)

7. (a) Create the following tables using SQL commands (specify primary key and foreign key constraints) (6M) CO3
   branch (branch-name, branch-city, assets)
   customer(customer-name, customer-street, customer-city)
   employee (employee-name, branch-name, salary)
   (b) Write Queries for the following: (8M) CO3
      (i) Find all name of customers whose city is in Brooklyn
      (ii) Find all employees whose salary is greater than 1400 and working branch is not in the city 'XXXX'
      (iii) Calculate the average salary of all employees and show the average salary as "avg_salary"
      (iv) Find the branch name in which there are more number of employees.

UNIT – IV

8. (a) Discuss the concept of identification of candidate key using a set of functional dependencies of a relation. (7M) CO4
   (b) Explain Third Normal Form and BCNF with suitable examples. (7M) CO4

(OR)

9. (a) Differentiate between conflict and view serializability. (7M) CO4
   (b) Explain Recoverable and Non Recoverable schedules with examples. (7M) CO4

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UNIT – IV

8. (a) What is unification? Explain the algorithm with an example. (7M) CO4

   (b) Write down logical representations for the following sentences, suitable for use with Generalized Modus Ponens (7M) CO4

   (i) Horses, cows and pigs are mammals.
   (ii) An offspring of a horse is a horse.
   (iii) Bluebeard is a horse.
   (iv) Bluebeard is Charlie's parent.
   (v) Offspring and parent are inverse relations.

(OR)

9. (a) Formulate the problem as a STRIPS planning problem for moving out of the apartment. (7M) CO4

   (b) Construct a semantic net for the following: (7M) CO4

   (i) Jerry is a cat.
   (ii) Jerry is a mammal
   (iii) Jerry is owned by Priya.
   (iv) Jerry is brown colored.
   (v) All Mammals are animal.

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CMMR1(R20)

Hall Ticket Number:

CMMR1(R20)

B.TECH. DEGREE EXAMINATION, OCTOBER-2022

Semester IV [Second Year] (Regular)

INTRODUCTION TO ARTIFICIAL INTELLIGENCE

Time: Three hours Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

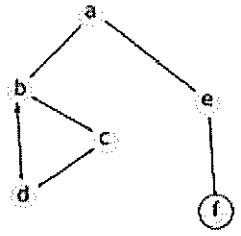
1. Answer the following in brief:

   (a) Difference between strong AI and weak AI. CO1
   (b) Define Turing test. CO1
   (c) What is informed search strategy? CO1
   (d) Name different types of environments. CO1
   (e) Why a hill climbing search is called a greedy local search? CO2
   (f) What is alpha-beta pruning? CO2
   (g) Define local search techniques. CO2
   (h) Define Universal Quantifier with an example CO3
   (i) How do you define the knowledge base? CO3
   (j) Outline the quantifiers used in first order logic. CO3
   (k) How do you construct complex sentences in propositional logic? CO4
   (l) Which process makes different logical expression looks identical? CO3
   (m) Differentiate between forward and backward chaining. CO4
   (n) Which is the most straight forward approach for planning algorithm? CO4

UNIT – I

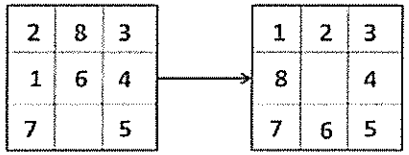
2. (a) Explain the various kinds of agent programs in intelligent systems. (7M) CO1

(b) Consider the search problem represented in Figure, where a is the start node and f is the goal node. Would you prefer DFS or BFS for this problem? Why? (7M) CO1



(OR)

3. (a) Solve the given problem and describe the operators involved in it. The eight puzzle consists of eight numbered, movable tile set in a 3 x 3 frame. One cell of the frame is always empty thus making it possible to move an adjacent number tile into the empty cell. Such a puzzle is illustrated in the following diagram. (7M) CO1



(b) Outline the advantages and disadvantages of iterative deepening depth-first search with an example. (7M) CO1

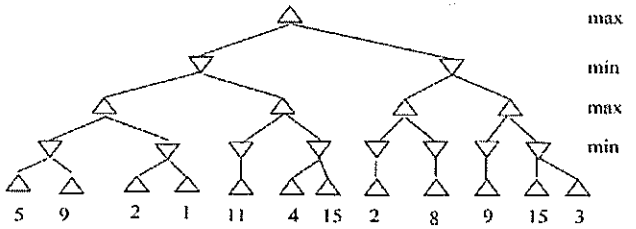
UNIT – II

4. (a) Explain how genetic algorithm is used for solving optimization problem. (7M) CO2

(b) What is constraint satisfaction problem? Describe the backtracking algorithm for constraint satisfaction problem. (7M) CO2

(OR)

5. Show the backed-up values for all the nodes in the following game tree and show the branches that are pruned by alpha-beta. For each branch pruned, explain briefly why alpha-beta prunes it. Follow the convention to examine the branches in the tree from left to right. CO2



UNIT – III

6. (a) Outline the steps associated with the knowledge Engineering process. (7M) CO3

(b) Decide whether each of the following sentences is valid, unsatisfiable, or neither using standard logical equivalences. (7M) CO3

(i) Smoke ⇒ Smoke
(ii) Smoke ⇒ Fire
(iii) (Smoke ⇒ Fire) ⇒ (¬Smoke ⇒ ¬Fire)
(iv) Smoke ∨ Fire ∨ ¬Fire
(v) ((Smoke ∧ Heat) ⇒ Fire) ⇔ ((Smoke ⇒ Fire) ∨ (Heat ⇒ Fire))
(vi) (Smoke ⇒ Fire) ⇒ ((Smoke ∧ Heat) ⇒ Fire)
(vii) Big ∨ Dumb ∨ (Big ⇒ Dumb)

(OR)

7. (a) Convert to CNF for the following:
$B_{1,1} \Leftrightarrow (P_{1,2} \vee P_{2,1})$ (7M) CO3

(b) Represent the following sentences in FOL (7M) CO3

(i) Some students took French in spring 2001.
(ii) Every student who takes French passes it.
(iii) Only one student took Greek in spring 2001.
(iv) The best score in Greek is always higher than the best score in French.

Hall Ticket Number:

ITH14(R20)

B.TECH. DEGREE EXAMINATION, OCTOBER-2022

Semester IV [Second Year] (Regular)

MEAN WEB DEVELOPMENT

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following in brief:
   (a) What is the difference between Node.js and AngularJS? CO1
   (b) Define MEAN Stack. CO1
   (c) What are the uses of node package in web development? CO1
   (d) What methods are used to add Event listeners to objects? CO2
   (e) Define MangoDB. CO2
   (f) Which are the most important features of MongoDB? CO2
   (g) What is the use of the Express module? How does an Express server start? CO3
   (h) What is Configuring Routes in Express? CO3
   (i) Define middleware. Where middleware is used. CO3
   (j) How to Implement Session Authentication with example? CO4
   (k) How to build a Custom Pipe? CO4
   (l) What are Angular Components. CO4
   (m) Define Data Binding. CO4
   (n) What are the Built-in Directives? CO4

UNIT – I

2. (a) What modules are used to create a HTTP server? How to e Understand Request and Response for server Object? (7M) CO1

(b) Explain how components of Node.js-to-Angular Stack Work. (7M) CO1

(OR)

3. (a) How can you access the File System from Node.js? Explain with an example. (7M) CO1
   (b) How to create our own custom events and implementing Listener callbacks that get implemented what an event is emitted in Node? (7M) CO1

UNIT – II

4. (a) Explain about Embedded data model and Normalized data model with example. (7M) CO2
   (b) What is MongoDB? Explain accessing and manipulating collections in MongoDB database with example. (7M) CO2

(OR)

5. (a) How to manage collections within MongoDB database using shell? Explain with example. (7M) CO2
   (b) Explain about result set in MongoDB with example. (7M) CO2

UNIT – III

6. (a) How to implement the modules in TypeScript with example. (7M) CO3
   (b) Explain configuring routes in Express with example. (7M) CO3

(OR)

7. (a) Explain about middleware where middleware is used with example. (7M) CO3
   (b) How to implement session authentication? Explain with an example. (7M) CO3

UNIT – IV

8. (a) How to create a feature component in Angular with an example? (7M) CO4
   (b) Describe the basic angular application creation with an example. (7M) CO4

(OR)

9. (a) How to implement pipes in Angular? Create custom pipe that filters our select words from a string. (7M) CO4
   (b) What are different categories of Angular directives? Explain attribute directives with an example. (7M) CO4

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ITH14(R20)

Hall Ticket Number:

CDMR1(R20)

B.TECH. DEGREE EXAMINATION, OCTOBER-2022

Semester IV [Second Year] (Regular)

INTRODUCTION TO DATA SCIENCE AND MACHINE LEARNING

Time: Three hours | Maximum Marks: 70

Answer Question No.1 compulsorily. (14 x 1 = 14)
Answer One Question from each unit. (4 x 14 = 56)

1. Answer the following in brief:
   (a) List the various steps involved in Data Science Process. CO1
   (b) Explain about qualitative data and quantitative data with example. CO1
   (c) What is the importance of data preprocessing? CO1
   (d) Which Python library is used to visualize the data using line plot? CO2
   (e) List various steps to train a machine learning model. CO2
   (f) Define confusion matrix. CO2
   (g) List various performance measures of Regression model. CO3
   (h) Define feature engineering. CO3
   (i) Describe Regression. CO3
   (j) What is the nature of output attribute in the classification model? CO4
   (k) What is the difference between simple linear regression and multiple linear regression? CO4
   (l) Define Unsupervised learning. CO4
   (m) List few applications of unsupervised learning. CO4
   (n) Mention various clustering methods of hierarchical clustering. CO4

UNIT – I

2. (a) Explain about different types of data with example. (7M) CO1

(b) Explain about data quality and remediation. (7M) CO1

(OR)

3. (a) Write a Python program to load the data from any dataset and describe the characteristics and statistics of data set. (7M) CO1
   (b) Explain about data Preprocessing. (7M) CO1

UNIT – II

4. (a) Discuss about the role of one hot encoding and get_dummies() method in the conversion process of categorical to numerical attributes. (7M) CO2
   (b) Explain with Python syntax to perform normalization on numerical attributes with example. (7M) CO2

(OR)

5. (a) Explain the following: (7M) CO2
   (i)Mean Absolute error (ii) Precision
   (iii) F1-Score (iv) R2-Score
   (b) Define Baye's theorem and explain with your own data. (7M) CO2

UNIT – III

6. (a) What are the characteristics of Support vector machine and explain about various kernels to convert nonlinear to linear data. (7M) CO3
   (b) Define entropy & information gain and explain the steps to construct a decision tree. (7M) CO3

(OR)

7. (a) Describe in detail about any two applications of logistic regression. (7M) CO3
   (b) Differentiate between decision tree and random forest. (7M) CO3

UNIT – IV

8. (a) Differentiate between supervised and unsupervised learning. (7M) CO4
   (b) Write an algorithm for k-mediods to find the clusters. (7M) CO4

(OR)

9. (a) Describe about DBSCAN algorithm. (7M) CO4
   (b) How to find frequent item sets? Explain the steps with example. (7M) CO4

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