Qno	Question	Marks	Section
1	Write short notes on the following a)Characteristics of the software. b)Software applications. c)Software myths.	12	Section-I
2	Write short notes on the following a) Generic process framework b)Layered technology	6 6	Section-I
3	Write short notes on the following a)Process framework activities b)Umbrella Activities	 6 6	Section-I
4	Elaborate the CMMI standard for software process	12	Section-I
5	Explain the various software process models in detail.	12	Section-I
6	Explain the following: (i)waterfall model (ii) Spiral model (iii)RAD model (iv) Prototyping model.	12	Section-I
7	List the principles of agile software development process and state the Problems with agile methods?.	12	Section-I
8	Discuss any four software process models with suitable application.		Section-I
9	*Explain why incremental development is the most effective approach for developing business software systems. Why is this model less appropriate for real time systems engineering?*	12	Section-I
10	*a. List the characteristics of software?* *b. Explain briefly about evolutionary model?*	6 6	Section-I
11	Summarize the following with examples a)Functional requirements b)Non functional requirements	 6 6	Section-II
12	Summarize, how to write software requirements specification document	12	Section-II
13	What is SRS?Explain in detail about various component of an SRS	12	Section-II
14	Sketch the following system models for MICROWAVE OVEN a)CONTEXT MODEL b)BEHAVIOUR MODEL	12	Section-II
15	Sketch the following system models for ATM machine a)OBJECT MODEL b)DATA MODEL	12	Section-II
16	Draw the System models for library management system	12	Section-II
17	What is the purpose of data flow diagrams? What are the notations used for the same. Explain by constructing a context flow diagram level -0 DFD and level-1 DFD for a library management system?	12	Section-II
18	Elaborate the different ways of representing the system requirements and interface requirements.	12	Section-II
19	*a. What is the goal of requirements analysis phase?* *b. Give reasons why the requirements analysis phase is a difficult one?*	12	Section-II
20	a. What is interface specification? b. Explain user requirements & system requirements?	4 8	Section-II
21	Discuss the design model elements in detail	12	Section-III
22	Describe in detail about architectural styles?	12	Section-III

23	Write short notes on following a)Data design b)Architectural patterns c)Architecture design.	 *4,4,4*	*Section-III*
24	Elaborate the conceptual model of UML and design	*12*	*Section-III*
25	Design structural model using UML diagrams for ATM system.?	*12*	*Section-III*
26	Explain about the Black box testing in detail	*12*	*Section-III*
27	Explain about the white box testing in detail	*12*	*Section-III*
28	Discuss the Testing Strategies for Conventional Software	*12*	*Section-III*
29	*Summarize the Design concepts of software engineering?*	*12*	*Section-III*
30	*Summarize the concept of art of debugging?*	*12*	*Section-III*
31	Define Risk. Explain the needs and activities or risk management?	*12*	*Section-IV*
32	Define software risk and differentiate ,Reactive vs proactive risk strategies	*12*	*Section-IV*
33	Explain risk identification ,Risk projection, risk refinement	*12*	*Section-IV*
34	Explain the RMMM, RMMM plan in detail	*12*	*Section-IV*
35	Explain in detail ISO 9000 quality standards	*12*	*Section-IV*
36	Write short notes a) Quality concepts b) Quality assurance and its activities.	 *6* *6*	*Section-IV*
37	Elaborate ,how the form technical reviews and software reviews are conducted are for quality assurance?	*12*	*Section-IV*
38	Write short notes on a)Statistical software quality assurance b)Software reliability	 *6* *6*	*Section-IV*
39	*List and explain the various software quality factors?*	*12*	*Section-IV*
40	*a. Define software quality and list quality concepts?* *b. give the overview of software reliability concept?*	*6* *6*	*Section-IV*
41	Explain Software project management, challenges in SPM	*12*	*Section-V*
42	Elaborate the .Software project management activities in detail	*12*	*Section-V*
43	Write short notes on a)Stake holders b)Objectives and goals c)Project scope	 *4* *4* *4*	*Section-V*
44	Explain how breakdown structure is used in software engineering for managing the projects.	*12*	*Section-V*
45	Discuss how software project scheduling helps in timely release of a product	*12*	*Section-V*
46	Explain the stepwise project planning in detail with a neat diagram	*12*	*Section-V*
47	Write Short notes on a)Project and product. b)Project deliverable	 *6* *6*	*Section-V*
48	Explain effort estimation and Infrastructure in software project management	*12*	*Section-V*
49	*a. What are the goals of software project management?* *b. Discuss the need of software project management?*	*6* *6*	*Section-V*
50	*Explain few problems associated with software projects ?*	*12*	*Section-V*

1	*Define Cloud Computing? Explain the differences between Traditional Computing and Cloud Computing?*	*12*	*Section-I*
2	*a) Explain about 4 roots of Cloud Computing?* *b) Explain about any 2 Internet technologies, how they are useful in cloud computing?*	*6* *6*	*Section-I*
3	*Explain and define the characteristics of different types of cloud services with neat diagram?*	*12*	*Section-I*
4	*Briefly Explain about Cloud service models with example.*	*12*	*Section-I*
5	*a) Analyse Cloud Computing Challenges?* *b) What are the features of Cloud Computing?*	*6* *6*	*Section-I*
6	*a) Explain about Cloud infrastructure management.* *b) Briefly Explain about the cloud deployment models*	*6* *6*	*Section-I*
7	*a) Explain about Infrastructure of a service provider* *b) Explain about Platform as a service provider*	*6* *6*	*Section-I*
8	*Illustrate the different types cloud with an Example?*	*12*	*Section-I*
9	*a) What are the Cloud Challenges and risks of Cloud Computing, Explain in detail.* *b) Illustrate the difference between Traditional Computing vs Cloud Computing?*	*6* *6*	*Section-I*
10	*Explain about seven step model for cloud migration in detail with neat diagram?*	*12*	*Section-I*
11	*What is AWS? Explain about AWS Cloud Adaptation Framework in detail?*	*12*	*Section-II*
12	*a) Explain importance of AWS? How to interact with AWS.* *b) Explain Service categories of AWS*	*6* *6*	*Section-II*
13	*Explain in detail about how the Global Infrastructure of AWS is maintained?*	*12*	*Section-II*
14	*a) Explain the service categories of AWS in detail?* *b) Explain about AWS Cloud Adaptation Framework in detail?*	*6* *6*	*Section-II*
15	*Briefly Explain about Importance of Services and Service categories.*	*12*	*Section-II*
16	*Explain about AWS Architect Framework Design Principles?*	*12*	*Section-II*
17	*a) Explain about Operational Excellence pillar with design principles in AWS* *b) Explain about Performance Efficiency pillar with design principles in AWS*	*6* *6*	*Section-II*
18	*Explain about Reliability and High availability.*	*12*	*Section-II*
19	*Briefly explain about any 4 pillars of AWS with design principles.*	*12*	*Section-II*
20	*a) Explain About Security pillar in AWS.* *b) Explain about High Availability*	*6* *6*	*Section-II*
21	*Explain about AWS Security- shared responsibility model with*	*12*	*Section-III*

	a neat diagram?		
22	*What is AWS IAM? What are the components essential components in IAM and what is the purpose of IAM in AWS*	*12*	*Section-III*
23	*a) Explain the Importance of AWS IAM.* *b) How to provide the security to multiple accounts and data.*	*6* *6*	*Section-III*
24	*Briefly Explain about Elastic Load Balancing and How elastic load balancing works.*	*12*	*Section-III*
25	*a) Explain about Elastic Load Balancing.* *b) Importance of Cloud-watch in AWS*	*6* *6*	*Section-III*
26	*a) What is VPC? How VPC is implemented in Cloud?* *b) Explain about VPC Security?*	*6* *6*	*Section-III*
27	*a) What is VPC? Explain the architecture of VPC with a neat diagram?* *b) Briefly Explain about ROUTE53 in AWS*	*6* *6*	*Section-III*
28	*a) Briefly Explain about VPC networking Internet gateway.* *b) Briefly Explain about NAT gateway with diagram.*	*6* *6*	*Section-III*
29	*Explain about VPC peering and VPC Direct connection with a diagram*	*12*	*Section-III*
30	*a) What is Cloud front explain in detail about it?* *b) explain about Security groups and Network ACLs*	*6* *6*	*Section-III*
31	*Briefly Explain about AWS compute services.*	*12*	*Section-IV*
32	*a) Explain about Amazon EC2 instance.* *b) Briefly explain about Instance types.*	*6* *6*	*Section-IV*
33	*What is AMI? What is the purpose of AMI while creating Instance?*	*12*	*Section-IV*
34	*a) Illustrate about EC2 vs Virtual Machine?* *b) Explain about volumes and Snapshots in AWS.*	*6* *6*	*Section-IV*
35	*Demonstrate about ec2 Cost Optimization?*	*12*	*Section-IV*
36	*a) Explain the importance of Amazon EC2.* *b) How to launch a Amazon Instance in AWS.*	*6* *6*	*Section-IV*
37	*How to create a Lambda function for displaying Hello World*	*12*	*Section-IV*
38	*Briefly Explain about Serverless computing platform with key characteristics.*	*12*	
39	*How does Elastic Beanstalk works in AWS?*	*12*	*Section-IV*
40	*a) Explain about AWS Elastic Beanstalk deployment.* *b) Explain the benefits of elastic beanstalk.*	*6* *6*	*Section-IV*
41	*Briefly Explain about Amazon Block Store*	*12*	*Section-V*
42	*a) What are the features of EBS?* *b) Explain about the types of EBS volumes.*	*6* *6*	*Section-V*
43	*Briefly Explain about Amazon Simple Storage Service*	*12*	*Section-V*
44	*Explain about Amazon S3 storage classes.*	*12*	*Section-V*
45	*a) Explain the importance of Amazon EBS.* *b) Define S3 Life Cycle policies*	*6* *6*	*Section-V*
46	*Explain about Amazon RDS instance and How to Create an RDS Instance in AWS?*	*12*	*Section-V*

47	*a) Explain about AWS RDS Database Engine* *b) Differentiate the Relational and non-relational data bases*	*6* *6*	*Section-V*
48	*What is Amazon Dynamo DB and its core components?*	*12*	*Section-V*
49	*How does Amazon Redshift simplify data warehouse and analytics management?*	*12*	*Section-V*
50	*a) What is the difference between SQL DB and NOSQL DB in AWS?* *b) What is the importance of RDS in Amazon*	*6* *6*	*Section-V*

<table>
<tr><th>Qno</th><th>Question</th><th>Marks</th><th>Section</th></tr>
<tr><td>1</td><td>Explain the importance of the data and various fields involved in data science.</td><td>12</td><td>Section-I</td></tr>
<tr><td>2</td><td>Define data ,its sources and discuss the types of data for Data science with examples</td><td>12</td><td>Section-I</td></tr>
<tr><td>3</td><td>a) Differentiate between Supervised Learning and Unsupervised Learning
b) List and explain some applications of Machine Learning.</td><td>6
6</td><td>Section-I</td></tr>
<tr><td>4</td><td>Explain the relationship between Artificial Intelligence, Machine learning and Deep Learning in detail with examples</td><td>12</td><td>Section-I</td></tr>
<tr><td>5</td><td>What is Machine learning? Explain the typical methodology for machine learning approach with examples.</td><td>12</td><td>Section-I</td></tr>
<tr><td>6</td><td>What is Deep Learning give some Examples of Deep Learning?</td><td>6
6</td><td>Section-I</td></tr>
<tr><td>7</td><td>What is Artificial Intelligence give some Examples of AI?</td><td>12</td><td>Section-I</td></tr>
<tr><td>8</td><td>Differentiate between ML and DL with examples?</td><td>12</td><td>Section-I</td></tr>
<tr><td>9</td><td>What are the supervised and unsupervised Learning Algorithms in Machine Learning?</td><td>12</td><td>Section-I</td></tr>
<tr><td>10</td><td>What is Machine Learning? Give some applications of Machine Learning?</td><td>6</td><td>Section-I</td></tr>
<tr><td>11</td><td>What is the process of EDA? Explain with the help of use case?</td><td>6
6</td><td>Section-II</td></tr>
<tr><td>12</td><td>What is Univariate, Bivariate and Multivariate analysis in visualisation?</td><td>12</td><td>Section-II</td></tr>
<tr><td>13</td><td>What is Data visualization and explain about different types of visual analysis tools?</td><td>12</td><td>Section-II</td></tr>
<tr><td>14</td><td>Explain the process of EDA and steps involved in it.</td><td>12</td><td>Section-II</td></tr>
<tr><td>15</td><td>a) Explain how to obtain the statistical information about the dataset
b) Explain how to access and modify the rows and columns in the dataset</td><td>6
6</td><td>Section-II</td></tr>
<tr><td>16</td><td>Apply the inter quartile range technique on a given data below and identify the outliers.
5,7,10,15,19,21,21,22,22,23,23,23,23,23,24,24,24,24,25</td><td>12</td><td>Section-II</td></tr>
<tr><td>17</td><td>Explain about the different types of plots and charts for visualisation in the Exploratory Data Analysis?</td><td>12</td><td>Section-II</td></tr>
<tr><td>18</td><td>Discuss the various methods to detect the outliers in ‘Weight’ variable for a given data.
<table>
<tr><th>Student_Name</th><th>Weight(Kg)</th></tr>
<tr><td>Raj</td><td>56</td></tr>
<tr><td>Sinal</td><td>52</td></tr>
<tr><td>Akash</td><td>48</td></tr>
<tr><td>Lavanya</td><td>50</td></tr>
<tr><td>Hansica</td><td>45</td></tr>
<tr><td>Rohit</td><td>50</td></tr>
<tr><td>Sai krishna</td><td>57</td></tr>
</table></td><td>12</td><td>Section-II</td></tr>
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<tr><td></td><td><table><tr><td>Akshaya</td><td>488</td></tr><tr><td>Mananya</td><td>52</td></tr></table></td><td></td><td></td></tr>
<tr><td>19</td><td>Write a program to perform the exploratory data analysis.</td><td>12</td><td>Section-II</td></tr>
<tr><td>20</td><td>What is an Outlier? Explain causes of outliers and different techniques to detect the outliers?</td><td>6
6</td><td>Section-II</td></tr>
<tr><td>21</td><td>Discuss about different methods of converting categorical data into numerical data with example.</td><td>
6</td><td>Section-III</td></tr>
<tr><td>22</td><td>a) Calculate the various performance metrics for the given below confusion matrix $\begin{bmatrix} 60 & 8 \\ 22 & 10 \end{bmatrix}$
b) Define a residual and explain the steps involved in calculating the R-squared value with suitable example</td><td>6
6</td><td>Section-III</td></tr>
<tr><td>23</td><td>Define one hot encoding technique and apply it on the given data below.
<table><tr><th>EmpID</th><th>Gender</th><th>Car color</th><th>Class</th></tr><tr><td>45</td><td>Male</td><td>Red</td><td>Leading</td></tr><tr><td>78</td><td>Male</td><td>Red</td><td>Building</td></tr><tr><td>56</td><td>Female</td><td>Blue</td><td>Strong</td></tr><tr><td>12</td><td>Male</td><td>White</td><td>Building</td></tr><tr><td>7</td><td>Female</td><td>Blue</td><td>Strong</td></tr></table></td><td>12</td><td>Section-III</td></tr>
<tr><td>24</td><td>Discuss about the working procedure of logistic regression for binary and multi class classification</td><td>12</td><td>Section-III</td></tr>
<tr><td>25</td><td>What is the working principle for simple Linear Regression? Explain with example.</td><td>12</td><td>Section-III</td></tr>
<tr><td>26</td><td>a) What is Multiple Linear Regression explain with example
b) Explain how to train and test the model to improve accuracy?</td><td>
6
6</td><td>Section-III</td></tr>
<tr><td>27</td><td>What are the two types of Regression Algorithms? Explain with example?</td><td>12</td><td>Section-III</td></tr>
<tr><td>28</td><td>Differentiate between Regression and Classification Algorithms?</td><td>12</td><td>Section-III</td></tr>
<tr><td>29</td><td>What is confusion matrix? Explain how the performance of model is measured with the confusion matrix with example.</td><td>12</td><td>Section-III</td></tr>
<tr><td>30</td><td>Explain about Multiclass classification using Logistic Regression.</td><td>12</td><td>Section-III</td></tr>
<tr><td>31</td><td>a) Explain the similarity and differences between bagging and boosting.
b) Define the following
i. Entropy ii. Gini-index.</td><td>6
6</td><td>Section-IV</td></tr>
<tr><td>32</td><td>What is Support vector machine algorithm and what is the working principle of SVM.</td><td>12</td><td>Section-IV</td></tr>
<tr><td>33</td><td>How does the Naïve Bayes classifier work? Explain in detail.</td><td>12</td><td>Section-IV</td></tr>
</table>

<table>
<tr><td>34</td><td>Explain Decision tree algorithm for classifying the data tuples and with suitable example.</td><td>12</td><td>Section-IV</td></tr>
<tr><td>35</td><td>What are the two different types of Naïve Bayes Algorithm with the help of example</td><td>12</td><td>Section-IV</td></tr>
<tr><td>36</td><td>Explain about the working of Random Forest algorithm and Explain how it is better than Decision Tree?</td><td>12</td><td>Section-IV</td></tr>
<tr><td>37</td><td>Elaborate the process of building a Machine Learning model?</td><td>12</td><td>Section-IV</td></tr>
<tr><td>38</td><td>Discuss the Support vector machine classifier how it works to classify the data points in detail.</td><td>12</td><td>Section-IV</td></tr>
<tr><td>39</td><td>Explain about Bagging and Boosting in Random Forest Algorithm?</td><td>12</td><td>Section-IV</td></tr>
<tr><td>40</td><td>Explain k-means clustering algorithm with an example?</td><td>12</td><td>Section-IV</td></tr>
<tr><td>41</td><td>Discuss the effect of normalization in machine to learn the data and normalize the following data using min-max normalization method.

<table><tr><td>Data</td><td>1000</td><td>2000</td><td>3000</td><td>9000</td><td>15000</td></tr></table></td><td>12</td><td>Section-V</td></tr>
<tr><td>42</td><td>Define clustering? And discuss the process of estimating the optimal number of clusters</td><td>12</td><td>Section-V</td></tr>
<tr><td>43</td><td>What is K-Means clustering Algorithm and what is Min Max scaler used for in K means clustering</td><td>12</td><td>Section-V</td></tr>
<tr><td>44</td><td>Write a program to illustrate the working of k-means clustering algorithm</td><td>12</td><td>Section-V</td></tr>
<tr><td>45</td><td>How is Elbow method used to find out the optimal number of clusters in k-means clustering Algorithm</td><td>12</td><td>Section-V</td></tr>
<tr><td>46</td><td>What is the Principal Component Analysis ? how PCA is used to improve the performance of the model</td><td>12</td><td>Section-V</td></tr>
<tr><td>47</td><td>What are the Eigen Vectors or the Principal Components in PCA</td><td>12</td><td>Section-V</td></tr>
<tr><td>48</td><td>a)What is under fitting and over fitting ?
b)what is Regularisation?</td><td>12</td><td>Section-V</td></tr>
<tr><td>49</td><td>a) Define covariance matrix? And explain the types of relationships with suitable plot.
b) List the advantages of principle component analysis.</td><td>12</td><td>Section-V</td></tr>
<tr><td>50</td><td>State K-means algorithm. Apply k-means algorithm with two iterations to form two clusters by taking the initial cluster centers as subjects 1 and 4.
<table><tr><td>Subject</td><td>A</td><td>B</td></tr><tr><td>1</td><td>1.0</td><td>1.0</td></tr><tr><td>2</td><td>1.5</td><td>2.0</td></tr><tr><td>3</td><td>3.0</td><td>4.0</td></tr><tr><td>4</td><td>5.0</td><td>7.0</td></tr><tr><td>5</td><td>3.5</td><td>5.0</td></tr><tr><td>6</td><td>4.5</td><td>5.0</td></tr><tr><td>7</td><td>3.5</td><td>4.5</td></tr></table></td><td>12</td><td>Section-V</td></tr>
</table>

IMAGE PROCESSING

MR20-1CS0347

QUESTION BANK

Q,No	Question	Marks	Section
1	In detail explain the fundamental steps involved in digital image processing systems.	12	Section-I
2	Distinguish the following relationships between pixels with neat diagrams: i)Neighbourhood of pixel ii) adjacency iii) connectivity iv) Path	12	Section-I
3	a). Explain the image representation graphically and mathematically. b). Explain clearly about image sensing and acquisition.	6 6	Section-I
4	Illustrate how the image is digitized by sampling and quantization process.	12	Section-I
5	a). Write about the applications of digital image processing in various fields. b). Classify different types of images.	12	Section-I
6	Distinguish the following terms and brief each: i). Region ii). Boundary iii). Distance measures	12	Section-I
7	a). Explain the need for transformation in image processing. b). Compare spatial domain image and frequency domain image.	12	Section-I
8	Define 2D-DFT and write any four properties with proof.	12	Section-I
9	What are the components of a digital image processing system? Write in detail about each block.	4 8	Section-I
10	a). Explain about image acquisition? b). Compare about spatial resolution and intensity resolution.	12	Section-I
11	Explain image enhancement in terms of spatial domain and frequency domain clearly.	12	Section-II
12	What is point processing? and what are the various types of point operations?	12	Section-II
13	a). Explain the basic gray-level transformation clearly. b) Compare the point operation and the mask operation.	6 6	Section-II
14	Define histogram? Explain histogram equalization with a suitable example.	12	Section-II
15	Explain image smoothing in terms of various spatial filters.	12	Section-II
16	Explain image sharpening in terms of various spatial filters.	12	Section-II
17	Classify the performance of following sharpening filters a) Ideal HPF b) Butterworth HPF c) Gaussian HPF	4 4 4	Section-II

18	Distinguish between image smoothing filters and sharpening filters. And also specify their advantages and drawbacks.	12	Section-II
19	Define Image negative, Contrast stretching and Gray level slicing?	12	Section-II
20	Analyze the performance of following smoothing filters a) Ideal Low Pass Filter b) Butterworth Low Pass Filter c) Gaussian Low Pass Filter	12	Section-II
21	Explain model of image degradation and restoration process with a block diagram?	12	Section-III
22	Discuss about different types of Image Blur	12	Section-III
23	Discuss the process of image restoration by direct inverse filtering?	12	Section-III
24	Explain the method of Least Mean Squares Filtering (Wiener) for image restoration?	12	Section-III
25	a) Importance of color image processing b) Discuss about color fundamentals	6 6	Section-III
26	Discuss about concept of RGB color model.	12	Section-III
27	Briefly explain about CMYK color model.	12	Section-III
28	Briefly explain about HSI color model.	12	Section-III
29	a) Compare image enhancement and restoration techniques? b) Give the probability density functions for Salt and Pepper noise models	12	Section-III
30	What causes image degradation and how does the restoration process work?	12	Section-III
31	What are the derivative operators useful in image segmentation? Explain their role in segmentation.	12	Section-IV
32	What is thresholding? Explain about global thresholding	12	Section-IV
33	Explain about basic adaptive Thresholding process used image segmentation	12	Section-IV
34	Explain in detail the threshold selection based on boundary characteristics	12	Section-IV
35	Explain about region-based segmentation	12	Section-IV
36	Describe about the canny edge detector with necessary equation and also write its algorithm.	12	Section-IV
37	Define classification of edges, edge detection and edge linking?	12	Section-IV
38	Explain about Region Splitting and Merging with an example	12	Section-IV
39	a). Illustrate the condition to be met by the partitions in region-based segmentation. b) List the various methods of thresholding in image segmentation.	6 6	Section-IV

<table>
<tr><td>40</td><td>a). Identify the detection of discontinuity in an image using segmentation.
b). Evaluate the advantages and disadvantages of using more than one seed in a region growing technique.</td><td>6
6</td><td>Section-IV</td></tr>
<tr><td>41</td><td>Discuss lossy and lossless compression in detail.</td><td>12</td><td>Section-V</td></tr>
<tr><td>42</td><td>Define the following image compression terms:
a) information
b) Entropy
c) Efficiency</td><td>4
4
4</td><td>Section-V</td></tr>
<tr><td>43</td><td>Define run length coding. and encode with the given example “12344444444444444444456788888888888888888190000000000000”</td><td>12</td><td>Section-V</td></tr>
<tr><td>44</td><td>Explain Shannon Fano coding and Huffman coding.</td><td>12</td><td>Section-V</td></tr>
<tr><td>45</td><td>Find the efficiency and entropy of the sentence "MUMMY" with Shannon-Fano coding</td><td>12</td><td>Section-V</td></tr>
<tr><td>46</td><td>Explain about different types of image compression models</td><td>12</td><td>Section-V</td></tr>
<tr><td>47</td><td>What is image compression? and write about the need for image compression.</td><td>12</td><td>Section-V</td></tr>
<tr><td>48</td><td>Find the efficiency and entropy of the sentence of “COMMITTEE” with Huffman coding.</td><td>12</td><td>Section-V</td></tr>
<tr><td>49</td><td>Calculate the efficiency of Huffman code for the following symbol whose probability of occurrence is given below:
<table><tr><th>Symbol</th><th>Probability</th></tr><tr><td>a</td><td>0.9</td></tr><tr><td>b</td><td>0.06</td></tr><tr><td>c</td><td>0.02</td></tr><tr><td>d</td><td>0.02</td></tr></table></td><td>12</td><td>Section-V</td></tr>
<tr><td>50</td><td>What is Data Redundancy? Classify different kinds of Data redundancies.</td><td>12</td><td>Section-V</td></tr>
</table>

Qno	Question	Marks	Section
1	Explain the advantages & disadvantages of distributed database.	12	Section-I
2	What are the Factors Encouraging DDBMS	12	Section-I
3	What are the distribution design issues? Explain with examples.	12	Section-I
4	Explain about Architectural Models for DDBMS	12	Section-I
5	Write and explain problem areas of distributed data base system	12	Section-I
6	Write about difference between centralization and decentralization database	12	Section-I
7	What is the difference between Homogeneous and Heterogeneous Distributed DBMSs	12	Section-I
8	What are the distribution design issues? Explain with examples.	12	Section-I
9	Explain briefly about Fragmentation with suitable examples.	12	Section-I
10	Explain Top Down Design Process for distributed database design	12	Section-I
11	Explain query processing with examples.	12	Section-II
12	Give objective of query processing in view of distributed database	12	Section-II
13	Briefly describe the characterization of query processors.	12	Section-II
14	Explain Layers of Query Processing	12	Section-II
15	List steps of query decomposition and explain any one from that.	12	Section-II
16	Explain Semi join Based Algorithms	12	Section-II
17	Explain System R Algorithm	12	Section-II
18	Explain System R * Algorithm	12	Section-II
19	Explain Hill-Climbing Algorithm	12	Section-II
20	what are the steps in query optimization	12	Section-II
21	Briefly explain transaction management	12	Section-III
22	Describe ACID properties with example.	12	Section-III
23	What about Types of Distributed Transaction	12	Section-III
24	What is the objective of Distributed Concurrency Control?. Give the Reasons.	12	Section-III
25	Write about Types of Locks in Distributed Transactions. List out different methods of Concurrency Control.	12	Section-III
26	Explain serializability with an example.	12	Section-III
27	Briefly explain about Lock based concurrency algorithms	12	Section-III
28	Briefly explain about 2 PL concurrency algorithms	12	Section-III
29	Briefly explain about timestamp-based concurrency algorithms.	12	Section-III
30	Briefly explain about validation-based concurrency algorithms	12	Section-III

31	*Explain the failures in DDBMS.*	*12*	*Section-IV*
32	*Define Reliability and Availability in DDBMS*	*12*	*Section-IV*
33	*Explain Reliability Concepts and Measures*	*12*	*Section-IV*
34	*Write about fault-tolerance in distributed systems*	*12*	*Section-IV*
35	*Briefly explain Advantages & Disadvantages of Parallel BDMS*	*12*	*Section-IV*
36	*Difference between Parallel and Distributed databases*	*12*	*Section-IV*
37	*Draw and explain general architecture of Parallel Database system*	*12*	*Section-IV*
38	*Explain types of parallelism used by parallel DBMS*	*12*	*Section-IV*
39	*Explain Load Balancing Approach in Distributed System*	*12*	*Section-IV*
40	*Explain database clusters with Architectures in Parallel DBMS*	*12*	*Section-IV*
41	*List and explain Object-oriented concepts*	*12*	*Section-V*
42	*Explain about Object Oriented Data Model*	*12*	*Section-V*
43	*Explain Applications for OO databases*	*12*	*Section-V*
44	*Write about object distributed design*	*12*	*Section-V*
45	*Lilts out and explain architectural issues,*	*12*	*Section-V*
46	*Write about Object management, distributed object storage.*	*12*	*Section-V*
47	*Briefly explain Inheritance, object identity*	*12*	*Section-V*
48	*What is persistent programming languages and explain PPL*	*12*	*Section-V*
49	*Write about persistence of objects in DDBMS*	*12*	*Section-V*
50	*What is the comparison OODBMS and ORDBMS*	*12*	*Section-V*