

Mid Semester Examination 2022

Name of the Program: B.Tech.(CSE-DS/ML) & B.Tech. (IT) Semester: 8TH

Name of the Course: Business Intelligence

Course Code: TIT-851

Time: 90 Minutes

Maximum Marks: 50

Note:

- (i) Answer all the questions by choosing *any one of the sub questions*.
- (ii) Each question carries 10 marks

Q1	(10 marks)	CO-1
a)	Think of an industry of your choice such as retail, manufacturing, telecommunication etc. Identify the core business processes for the chosen industry.	
OR		
b)	Briefly explain the information users and their requirements. Discuss about the common core business processes.	CO-1
Q2	(10 marks)	
a)	Can we represent all businesses in some common model? Explain Malcolm Baldrige Criteria for performance excellence framework with suitable diagram.	CO-1
OR		
b)	Briefly explain the information users and their requirements. Discuss about the common core business processes.	CO-2
Q3	(10 marks)	
a)	Discuss about unstructured information management architecture (UIMA) with suitable Diagram.	CO-1
OR		
b)	Give an example of data being collected and stored in an unstructured format in your University.	CO-2
Q4	(10 marks)	
a)	How can an University or an organization can safeguard himself from SQL injection? List the attributes of security testing.	CO-2
OR		
b)	What are the ways through which semi-structured data can be manage and stored? Also discuss the challenges faced in its storage.	CO-2
Q5	(10 marks)	
a)	Compare and contrast structured, semi-structured and unstructured data. What are fact and dimension tables?	CO-3
OR		
b)	Why OLTP database designs are not generally a good idea for a data warehouse.	

Roll No.

TCS-851

B. TECH. (CSE-CC + IS, DS and ML) (EIGHTH SEMESTER)

MID SEMESTER EXAMINATION, April/May, 2022

STORAGE NETWORKS

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each question carries 10 marks.

1. A hospital uses an application that stores patient X-ray data in the form of large binary objects in an oracle database. The application is hosted on a UNIX server, and the hospital staff accesses the X-ray records through a Gigabit Ethernet backbone. Storage array provides storage to the UNIX server, which has 6 terabytes of usable capacity. 10 Marks (CO1)

(a) Explain the core elements of a data center.

OR

(b) Describe how the value of this patient data might change over time.

10 Marks (CO1)

P. T. O.

(2)

2. (a) A large company is considering a storage infrastructure—one that is scalable and provides high availability. More importantly, the company also needs performance for its mission-critical applications. Which storage topology would you recommend (SAN, NAS, IPSAN) and why ?

10 Marks (CO2)

OR

- (b) Compare and contrast storage centric architecture and server centric architecture.

10 Marks (CO2)

3. (a) Explain RAID. Illustrate the benefits of using RAID3 in a backup application.

10 Marks (CO3)

OR

- (b) DAS provides an economically viable alternatives to other storage networking solutions. Justify this statement.

10 Marks (CO3)

4. (a) Illustrate the benefits of using RAID 3 in a backup application.

10 Marks (CO3)

OR

- (b) What would you consider while choosing serial or parallel data transfer in a DAS implementation ? Explain your answer and justify your choice.

10 Marks (CO3)

5. (a) Explain the process of data recovery in case of a drive failure in RAID 5.

10 Marks (CO3)

OR

- (b) Why is RAID 0 not an option for Data Protection and high availability ?

10 Marks (CO3)

Roll No.

TDM-881

B. TECH. (CSE/IT) (EIGHTH SEMESTER)
MID SEMESTER EXAMINATION, April/May, 2022

DISASTER MANAGEMENT

Time : 1½ Hours

Maximum Marks : 50

- Note :** (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) Define is a Disaster. Discuss the impact of climate change on the various types of disasters. **10 Marks (CO2, CO4)**

OR

- (b) What is a natural calamity ? Explain the impact of the major natural calamities on the natural wealth of India. **10 Marks (CO1, CO3)**

2. (a) What is a Flood ? Discuss the various reasons for the occurrence of the Floods. **10 Marks (CO1, CO3)**

OR

- (b) What is Hazard ? Discuss the relation of the Hazards on the Disasters. **10 Marks (CO1, CO3)**

3. (a) What is a man-made disaster ? Explain the inter-relationship between the Disasters and Development. **10 Marks (CO1, CO5)**

P. T. O.

(2)

OR

- (b) Explain the role of indigenous knowledge, appropriate technology and availability of local resource to cope-up the impact of disasters.

10 Marks (CO2, CO5)

4. (a) What is a vulnerability ? Discuss the various geographical or political factors behind the increased vulnerabilities. 10 Marks (CO1, CO5)

OR

- (b) Outline the various types of natural disasters. Also, state the season behind each type. 10 Marks (CO3, CO5)

5. (a) What is sustainable development ? Explain the pillars of sustainable development. 10 Marks (CO1, CO5)

OR

- (b) Illustrate the major disasters that occurred in India in the recent past.

10 Marks (CO2, CO4)

480

Roll No.

TIT-851

**B. TECH. (CSE-DS/ML) & (IT) (EIGHTH SEMESTER)
MID SEMESTER EXAMINATION, April/May, 2022**

BUSINESS INTELLIGENCE

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) What is your understanding of Business Analytics ? Also discuss role of BI in business. 10 Marks (CO1)

OR

- (b) Why do you need core business function ? List few common core business functions. 10 Marks (CO1)

2. (a) Can we represent all businesses in some common model ? Discuss about leadership, strategic planning and customer focus process of Malcolm Baldrige criteria for performance excellence framework.

10 Marks (CO1)

OR

- (b) Briefly explain the information users and their requirements. Discuss about the common core business processes. 10 Marks (CO1)

P. T. O.

(2)

3. (a) Discuss about unstructured information management architecture (UIMA) with a suitable diagram. 10 Marks (CO1)

OR

- (b) Web pages are said to be unstructured data even though they are defined by the HTML markup language which has a rich structure. Why ?

10 Marks (CO2)

4. (a) Discuss about the semi-structured data with suitable example and what are the sources from it has generated. 10 Marks (CO2)

OR

- (b) What are the ways through which semi-structured data can be manage and stored ? Also discuss the challenges faced in its storage.

10 Marks (CO2)

5. (a) State *two* ways in which we can extract information from structured data. 10 Marks (CO2)

OR

- (b) According to your understanding, what are some of the queries that OLTP systems can process ? State the difference in data model for OLTP and OLAP. 10 Marks (CO3)

Roll No.

TCS-822

B. TECH. (CSE) (EIGHTH SEMESTER)
MID SEMESTER EXAMINATION, April/May, 2022

MOBILE APPLICATION DEVELOPMENT

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each question carries 10 marks.

1. (a) Explain how to use Cordova and the Ionic Framework to create a web-based mobile application. 10 Marks (CO2)

OR

- (b) Explain the process of creating a native application. What are the gain and downside with native application ? 10 Marks (CO1)

2. (a) In Android, how do you define an activity ? What layouts are available on Android ? 10 Marks (CO2)

OR

- (b) In Android, what is a broadcast receiver ? What exactly is the Android ecosystem ? 10 Marks (CO2)

P. T. O.

(2)

3. (a) What is the meaning of intent in Android app development ? In the creation of mobile applications, explain the types of intent.

10 Marks (CO3)

OR

- (b) Compare and contrast mobile app development with conventional app development. With appropriate instances. 10 Marks (CO3)

4. (a) Describe the architecture of android operation system with suitable diagram. 10 Marks (CO2)

OR

- (b) What are the key design elements of an Android application ?

10 Marks (CO1)

5. (a) Explain the file structure of Android Studio, which is used to build mobile applications. 10 Marks (CO2)

OR

- (b) Using a neat sketch, describe the life cycle of an android activity.

10 Marks (CO3)

Roll No.

TCS-821**B. TECH. (EIGHTH SEMESTER)****MID SEMESTER EXAMINATION, April/May, 2022****SOFT COMPUTING****Time : 1½ Hours****Maximum Marks : 50**

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each question carries 10 marks.

1. (a) What are the characteristics of Soft Computing ? How is soft computing different from hard computing ? 10 Marks (CO1)

OR

- (b) Explain the delta learning rule. What are the consequences of taking very large learning rate in delta learning rule ? 10 Marks (CO1, CO2)

2. (a) State the limitation of perceptron learning algorithm. Comment on the convergence of perceptron learning algorithm for non-linear separable delta. 10 Marks (CO1, CO2)

- (b) Propose the architecture of neural network for classifying the images into two classes named as Dog and Cat. Assume the data set contains

60000 images. How many images do you want to use for training and validation ? Give reason for your answer. 10 Marks (CO2, CO3)

3. (a) Describe in detail the algorithm you know to train the neural networks. Now, assume all the activation functions used in the neural network are step functions as follows : 10 Marks (CO2)

$$f(x) = \begin{cases} 0 & \text{if } x < 0 \\ 1 & \text{if } x \geq 0 \end{cases}$$

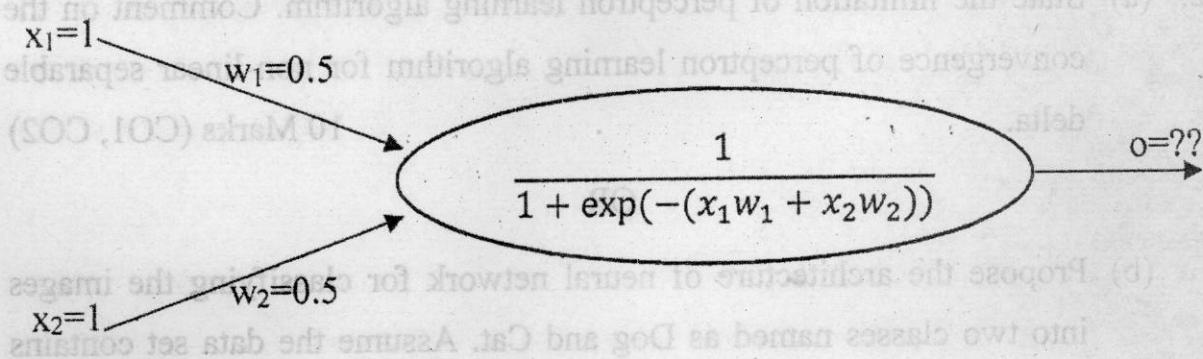
What would be the effect on learning neural network using your describe algorithm ?

OR

- (b) Consider the single node neural network given below. Let the error function is squared error i.e., $E = \frac{1}{2}(t - o)^2$, where $t = 0.1$ is the target output. 10 Marks (CO2, CO3)

(i) Calculate the error by the given network.

(ii) Using back propagation weight tuning rule, update w_1 and w_2 for one iteration only. Assume learning rate $\eta = 0.1$.



(3)

4. (a) Describe Radial Basis Function Network (RBFN) architecture in detail.
How Radial Basis Function Networks (RBFNs) are different from
Neural Networks ? 10 Marks (CO2)

OR

- (b) Explain the training of Radial Basis Function Network (RBFN).
Mention any *one* heuristic to choose the parameters value of Radial
Basis Function. 10 Marks (CO2)

5. (a) Write short notes on the following : 10 Marks (CO1, CO2)
- (i) Self-Organizing Maps
 - (ii) Hopfield Networks

OR

- (b) Write short notes on the following : 10 Marks (CO1, CO2)
- (i) Activation Functions of Neural Network
 - (ii) McCulloch-Pitts Neuron

Roll No.

TCS-810

B. TECH. (CSE) (EIGHTH SEMESTER)
MID SEMESTER EXAMINATION, April/May, 2022

VIRTUAL REALITY

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) Summarize all the degrees of freedom. How would you contrast Relative and Absolute degrees of freedom ? 10 Marks (CO1 and CO2)

OR

- (b) Summarize all the Monocular and Binocular cues used in Virtual Reality in detail. 10 Marks (CO1 and CO2)

2. (a) How would you classify the Navigation methods in Virtual Reality ? Discuss in detail the motor component of Navigation.

10 Marks (CO2 and CO3)

OR

- (b) Give a critical review of Wayfinding techniques in virtual environments. 10 Marks (CO2 and CO3)

P. T. O.

(2)

3. (a) How will you convince yourself whether an application is VR application and Non-VR applications with examples in terms of the three defining elements ? Explain these defining elements.

10 Marks (CO2)

OR

- (b) Which interaction method will you choose to put a user in the centre of the interaction ? Explain with an example. 10 Marks (CO2)

4. (a) Discuss Exocentric Interaction Technique. Envisage a VR application in which you will use this Interaction technique. 10 Marks (CO3)

OR

- (b) You want to build two VR applications : one to mimic a real-world scenario and another a Fantasy world. Provide design approaches for selection and manipulation operations in both these cases.

10 Marks (CO3)

5. (a) (i) What is A-frame ? Write a program in A-frame to generate a box, cylinder, sphere and a plane inside a browser.

- (ii) As a VR developer choose an approach to handle lack of controllers in HMD and to avoid fatigue. 10 Marks (CO1 and CO3)

OR

- (b) Write code in A-frame to create a complete scene in a Virtual World (You can use your own imaginations for your scene. The scene should contain features like animation, textures etc.) 10 Marks (CO1 and O3)

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Roll No.

TIT-801

B. TECH. (IT) (EIGHTH SEMESTER)

MID SEMESTER EXAMINATION, April/May, 2022

IT INFRASTRUCTURE MANAGEMENT

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each question carries 10 marks.

1. (a) What is IT infrastructure ? What are the various components of IT infrastructure management ? 10 Marks (CO1)

OR

- (b) What is the meaning of Information Technology (IT) ? How is it affecting the common life in current scenario ? 10 Marks (CO1)

2. (a) Explain various issues involved in designing IT organisations and IT infrastructure. 10 Marks (CO1)

OR

- (b) Explain cluster computing and grid computing with suitable example. List the various applications of these technologies. 10 Marks (CO1)

3. (a) Explain about Voice over Internet Protocol (VoIP) and discuss about 3-tier client-server architecture. 10 Marks (CO1)

P. T. O.

(2)

OR

- (b) What is In-depth Interview ? How does it work to obtain a qualitative research for identification of customer requirements ? 10 Marks (CO2)

4. (a) Discuss about the IT System Management Process with its important component involved in the attainment of the common task.

10 Marks (CO2)

OR

- (b) Systems design is the process of defining elements of a system like modules, architecture, components and their interfaces and data. Discuss business pattern through the IBM patterns for e-Business.

10 Marks (CO2)

5. (a) Why is ITIL required ? List the areas where ITIL plays an effective role.

10 Marks (CO2)

OR

- (b) What are the alternatives of ITIL ? Compare and contrast ITIL and MoF.

10 Marks (CO2)

Roll No.

TDM-881

B. TECH. (CSE/IT) (EIGHTH SEMESTER) MID SEMESTER EXAMINATION, April/May, 2022

DISASTER MANAGEMENT

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) Define is a Disaster. Discuss the impact of climate change on the various types of disasters. 10 Marks (CO2, CO4)

OR

- (b) What is a natural calamity ? Explain the impact of the major natural calamities on the natural wealth of India. 10 Marks (CO1, CO3)

2. (a) What is a Flood ? Discuss the various reasons for the occurrence of the Floods. 10 Marks (CO1, CO3)

OR

- (b) What is Hazard ? Discuss the relation of the Hazards on the Disasters. 10 Marks (CO1, CO3)

3. (a) What is a man-made disaster ? Explain the inter-relationship between the Disasters and Development. 10 Marks (CO1, CO5)

(2)

OR

- (b) Explain the role of indigenous knowledge, appropriate technology and availability of local resource to cope-up the impact of disasters.

10 Marks (CO2, CO5)

4. (a) What is a vulnerability ? Discuss the various geographical or political factors behind the increased vulnerabilities. 10 Marks (CO1, CO5)

OR

- (b) Outline the various types of natural disasters. Also, state the season behind each type. 10 Marks (CO3, CO5)

5. (a) What is sustainable development ? Explain the pillars of sustainable development. 10 Marks (CO1, CO5)

OR

- (b) Illustrate the major disasters that occurred in India in the recent past.

10 Marks (CO2, CO4)

480

Roll No.

TCS-802**B. TECH. (EIGHTH SEMESTER)****MID SEMESTER EXAMINATION, April/May, 2022****MOBILE COMPUTING****Time : 1½ Hours****Maximum Marks : 50**

- Note :** (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) UConn Stamford collaborated with AT & T Business to create a lab with 5G+ and edge computing that's designed to advance research and innovation. Evaluate wireless networking with suitable case study.

10 Marks (CO1)

OR

- (b) The boat-towing company needed a solution to dispatch and track its boats, which can help out-of-gas vessels or speed to emergency rescue situations. Evaluate wireless LAN with suitable case study.

10 Marks (CO1)

2. (a) A defense and government services company needed help in using drones and software to survey building and land and identify potential problems. Evaluate MAC issues with suitable case study.

10 Marks (CO2)

P. T. O.

OR

- (b) A loan company needed to evolve their contact center and its legacy equipment. They turned to a robust cloud platform to enhance customer experience. Evaluate IEEE 802.11 with suitable case study.

10 Marks (CO2)

3. (a) With an innovative cloud-based platform, Bluetooth-enabled devices, and user-friendly apps, healthcare providers can treat patients at home. Evaluate Bluetooth with suitable case study. 10 Marks (CO2)

OR

- (b) A cyber security risk assessment and a network penetration test helped identify cyber threats to a school's systems, networks, data, and information. Evaluate wireless multiple access protocols with suitable case study. 10 Marks (CO3)

4. (a) Having the right provider means connectivity contractors can count on even in many remote work sites. This contractor was able to cut expenses by 25%. Evaluate TCP over wireless with suitable case study.

10 Marks (CO4)

OR

- (b) Musicians, filmmakers, artists, and game designers rely on the fiber connectivity at RYSE Creative Village to complete their important work, Evaluate wireless applications with suitable case study.

10 Marks (CO2)

(3)

5. (a) 101 Voice, which customizes cloud telephony solutions for customers, found an easy way to help agencies that were receiving unprecedented call volumes. Evaluate mobile IP with suitable case study.

10 Marks (CO2)

OR

- (b) Waynes Pest Control needed a more robust network and a fleet management solution to support the technicians and other staff working remotely. Evaluate WAP with suitable case study. 10 Marks (CO2)

5. (a) 101 Voice, which customizes cloud telephony solutions for customers, found an easy way to help agencies that were receiving unprecedented call volumes. Evaluate mobile IP with suitable case study.

10 Marks (CO2)

- (b) Waynes Pest Control needed a more robust network and a fleet management solution to support the technicians and other staff working remotely. Evaluate WAP with suitable case study. 10 Marks (CO2)

TCS-802

450

TCS-861**B. TECH. (CSE-CC+IS, DS AND ML)
(EIGHTH SEMESTER)****MID SEMESTER EXAMINATION, April/May, 2022****DISTRIBUTED SYSTEMS****Time : 1½ Hours****Maximum Marks : 50**

- Note :** (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) Discuss a general architecture of distributed system. Give *two* examples.

10 Marks (CO1)

OR

- (b) What is the motivation behind building distributed system ?

10 Marks (CO1)

2. (a) "Process migration is a potential mean to share processing power and other resources among multiple processors." Discuss and explain.

10 Marks (CO1)

OR

- (b) Illustrated the main issues in Distributed Operating System.

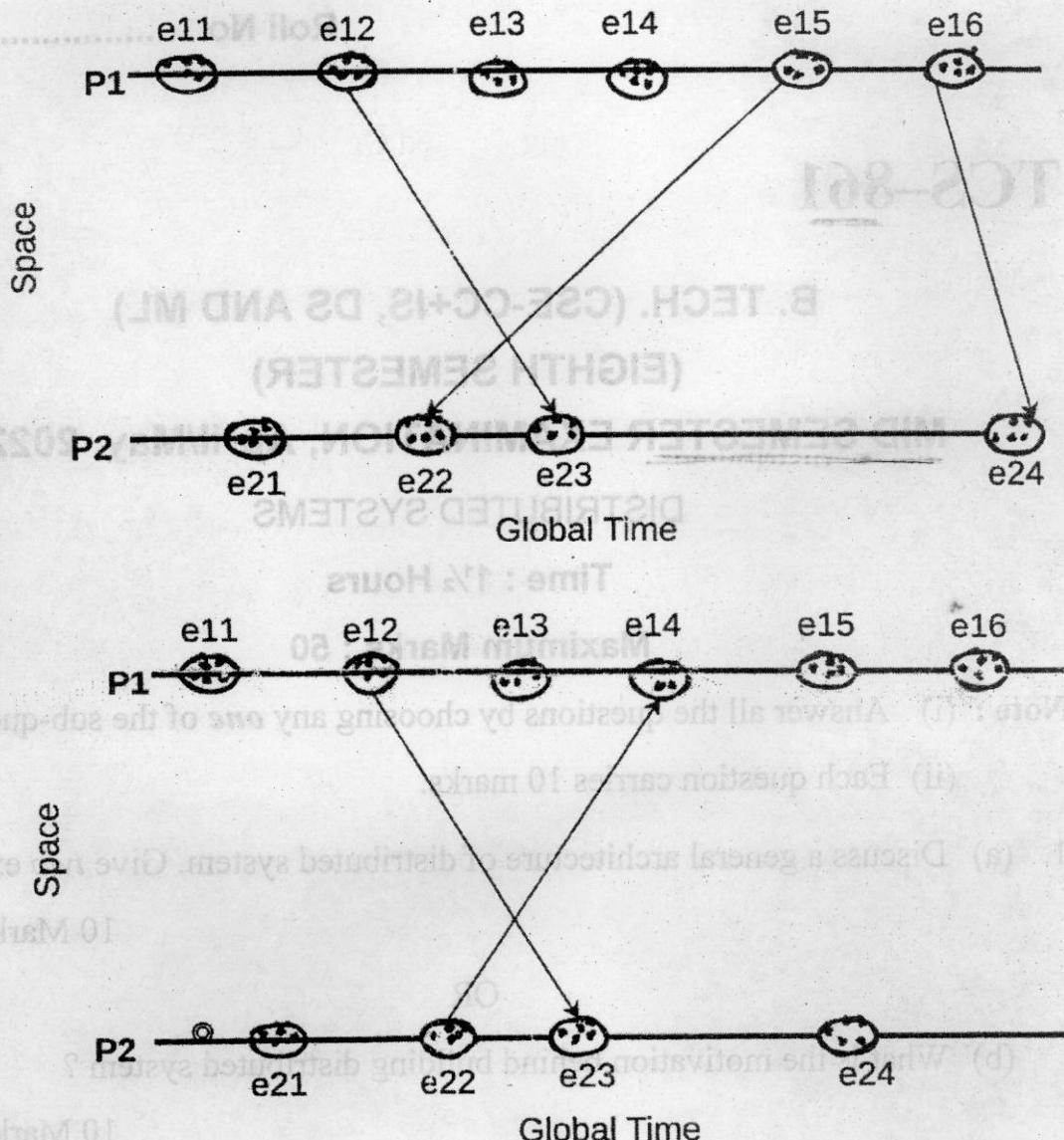
10 Marks (CO1)

P. T. O.

(2)

TCS-861

3. (a)



Identify all causally related and concurrent events in the given space-time diagram. 10 Marks (CO1)

OR

(b) Define happened before relation and concurrent events. 10 Marks (CO1)

(3)

4. (a) Define logical clocks. Explain the Lamport's implementation rule for the clocks.

10 Marks (CO2)

OR

- (b) Assume the systems shown in Q. 3 (a) Initially e11 and e21 have clock value as 1. Assign suitable clock values to the rest of the events.

10 Marks (CO2)

5. (a) Consider a distributed system where each node has its own clock. Assume that all the clocks in the system are perfectly synchronized. Also assume that the communication network is reliable. Give an algorithm for recording the global state.

10 Marks (CO3)

OR

- (b) Illustrate the limitations of Lamport's clock. Explain Vector clocks.

10 Marks (CO3)