

Enrolment No.



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SCHOOL OF ENGINEERING & TECHNOLOGY

Unit Test-II Examination – Oct 2024

Program :	SY B.Tech	Batch :	2023-2027	Semester :	III
Course Code & Name :	UBTCE207 Discrete Mathematics				
Maximum Marks :	20	Time:	2.30-3.30pm	1 Hrs	

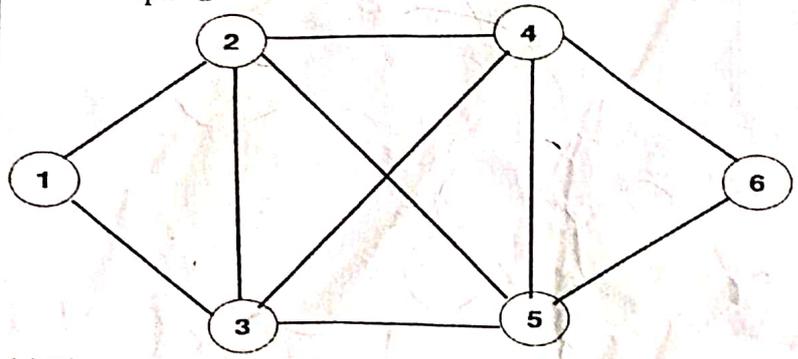
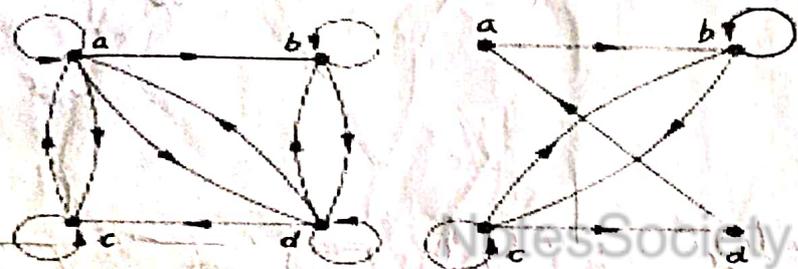
Course Outcomes (CO):

- To familiarize the students with the concepts and techniques of logics & sets.
- To recognize relations and its real-life application.
- To understand Algebraic structure and its application.
- To acquire the knowledge of graph theory.
- To acquire the knowledge trees to understand the concepts of different types of algorithms and its applications that would enhance analytical thinking power.

Instructions :

- All questions are compulsory.
- Assume missing data suitably, if any.
- Draw well labeled diagrams wherever necessary

QUESTIONS		CO	BTL	Marks
Q 1) Solve any two questions.		Max Marks: 10 (2*5)		
A. ✓	Let A= Set of all Rational No "X' where $0 < X \leq 1$ verify that A is a group under Multiplication.	CO3	B3	05
B. ✓	Verify Whether $(\mathbb{Z}_{12}, +)$ is a Cyclic Group ? find the Order of the Element and one Subgroup. $(0, n-1)$	CO3	B3	05
C.	$H = \begin{pmatrix} 0 & 0 & 0 & 1 & 1 & 1 & 1 \\ 0 & 1 & 1 & 0 & 0 & 1 & 1 \\ 1 & 0 & 1 & 0 & 1 & 0 & 1 \end{pmatrix}$ <p>(a) Let H be a Parity Matrix Convert it into Generator Matrix G ✓ (b) Find the code words C ✓ (c) Is C is Perfect Code justify the Answer</p>	CO3	B1	05

Q 2) Solve any two questions.		Max Marks: 10 (2*5)		
A ✓	<p>Given Graph G</p>  <p>(a) Find chromatic number of Graph colors (b) Find the number of Regions in Graph G (c) Convert the given Graph G into Bipartite Graph.</p>	CO4	B1	05
B ✓	<p>Find the adjacency matrix of the given directed multigraph with respect to the vertices listed in alphabetical order.</p> 	CO4	B1	05
C.	<p>Given a bipartite graph $G=(V_1,V_2,E)$ where $G=(V_1,V_2,E)$ with 10 vertices in V_1 and 15 vertices in V_2, and 50 edges, find the sum of the degrees of the vertices in V_1 and V_2.</p>	CO4	B4	05
***** All the Best *****				

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SCHOOL OF ENGINEERING & TECHNOLOGY

Unit Test-II Examination – Oct 2024

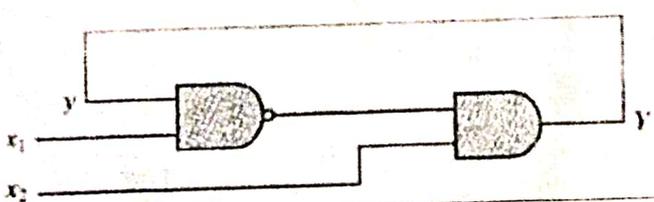
Program :	SY B.Tech	Batch :	2023-2027	Semester :	III
Course Code & Name :	UBTCE205A Digital Logic & Microprocessor			Date:	16oct2024
Maximum Marks :	20	Time:	1 Hrs		

Course Objectives:

- CO3-Study, analysis and design of clocked sequential circuits.
- CO4-To acquaint students with the asynchronous Sequential Circuits and Design of Hazard free circuits.

Instructions :

- All questions are compulsory.
- Assume missing data suitably, if any.
- Draw well labelled diagrams wherever necessary

QUESTIONS		CO	BTL	Marks
Q 1) Solve any one questions.		Max Marks: 10		
A I.	Describe a 8:1 Demultiplexer circuit .	CO3	L2	05
A II.	Describe a BCD to 7-segment decoder circuit.	CO3	L2	05
B. ✓	Design 3-bit synchronous counter.	CO3	L6	10
Q 2) Solve any one questions.		Max Marks: 10		
A I.	Explain the working of a JK flip-flop in detail	CO4	L2	05
A II	Illustrate the universal shift register, and how does it differ from other types of shift registers?	CO4	L2	05
B. ✓	Analyze following asynchronous sequential circuit 	CO4	L4	10

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Unit Test-II Examination – Oct 2024

Date: 18/10/2024

Program:	SY B.Tech	Batch:	2023-2027	Semester:	III
Course Code & Name:	UBTCE208 Operating System				
Maximum Marks:	20	Time:	1 Hrs		

Course Objectives (CO): The objectives of (Operating System) are:

1. To introduce basic concepts and functions of modern operating systems.
2. To comprehend the concept of process, thread management and scheduling.
3. To learn the concept of concurrency control.
4. To study various Memory Management techniques.
5. To know the concept of I/O and File Management.

Instructions:

- All questions are compulsory.
- Assume missing data suitably, if any.
- Draw well labelled diagrams wherever necessary.

QUESTIONS		CO	BTL	Marks																																																																																																																						
Q 1) Solve any two questions.		Max Marks: 10 (2*5)																																																																																																																								
A.	Consider the given table of the process. Check their states are in Safe or not if yes then state execution of the process? With the help of Banker's Algorithm.	CO3	L3	05																																																																																																																						
	<table border="1"> <thead> <tr> <th rowspan="2">Process</th> <th colspan="4">Max Need</th> <th colspan="4">Allocated</th> <th colspan="4">Remaining Need</th> <th colspan="4">Available</th> </tr> <tr> <th>A</th><th>B</th><th>C</th><th>D</th> <th>A</th><th>B</th><th>C</th><th>D</th> <th>A</th><th>B</th><th>C</th><th>D</th> <th>A</th><th>B</th><th>C</th><th>D</th> </tr> </thead> <tbody> <tr> <td>P0</td> <td>0</td><td>0</td><td>1</td><td>2</td> <td>0</td><td>0</td><td>1</td><td>2</td> <td>0</td><td>0</td><td>0</td><td>0</td> <td>1</td><td>5</td><td>2</td><td>0</td> </tr> <tr> <td>P1</td> <td>1</td><td>7</td><td>5</td><td>0</td> <td>1</td><td>0</td><td>0</td><td>0</td> <td>0</td><td>7</td><td>5</td><td>0</td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>P2</td> <td>2</td><td>3</td><td>5</td><td>6</td> <td>1</td><td>3</td><td>5</td><td>4</td> <td>1</td><td>0</td><td>0</td><td>2</td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>P3</td> <td>0</td><td>6</td><td>5</td><td>2</td> <td>0</td><td>6</td><td>3</td><td>2</td> <td>0</td><td>0</td><td>2</td><td>0</td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>P4</td> <td>0</td><td>6</td><td>5</td><td>6</td> <td>0</td><td>0</td><td>1</td><td>4</td> <td>0</td><td>6</td><td>4</td><td>2</td> <td></td><td></td><td></td><td></td> </tr> </tbody> </table>				Process	Max Need				Allocated				Remaining Need				Available				A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	P0	0	0	1	2	0	0	1	2	0	0	0	0	1	5	2	0	P1	1	7	5	0	1	0	0	0	0	7	5	0					P2	2	3	5	6	1	3	5	4	1	0	0	2					P3	0	6	5	2	0	6	3	2	0	0	2	0					P4	0	6	5	6	0	0	1	4	0	6	4	2				
	Process					Max Need				Allocated				Remaining Need				Available																																																																																																								
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P4	0	6	5	6	0	0	1	4	0	6	4	2																																																																																																														
B.	Explain Producer consumer problem.	CO3	L2	05																																																																																																																						
C.	Illustrate Dining Philosopher's Problem with the help of suitable example and diagram.	CO3	L3	05																																																																																																																						
Q 2) Solve any two questions.		Max Marks: 10 (2*5)																																																																																																																								
A.	Explain Demand Paging with the help of suitable examples and diagrams	CO4	L2	05																																																																																																																						
B.	Differentiate between Paging and Segmentation.	CO4	L4	05																																																																																																																						
C.	Analyse following reference string 4,3,2,1,4,3,5,4,3,2,1,5 Assume Frame Size =3. Find out the Page hit ratio for FIFO and LRU Algorithm?	CO4	L4	05																																																																																																																						

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SCHOOL OF ENGINEERING & TECHNOLOGY

Unit Test-II October- 2024

Program:	B.Tech	Batch :	2023-2027	Semester :	III
Course Code & Name:	Data Structures and Algorithms (UBTCE201/PCC)				
Maximum Marks:	20	Time:	1 Hrs		

Course Outcomes:

1. To study different data structures and analysis of algorithms.
2. To gain the knowledge about the concept of linked list.
3. To use and apply the concept of stack and queue
4. To categorize the use of searching and sorting techniques.
5. Implement Non-Linear Data Structures like Trees and graphs using programming language.

Instructions:

- All questions are compulsory.
- Assume missing data suitably, if any.
- Draw well labeled diagrams wherever necessary

QUESTIONS		CO	BTL	Marks
Q.1 Attempt the following.		Max Marks: 10 (2*5)		
A	Write pseudo code for inserting a node at the end position in a Singly linked list.	CO1	B1	05
B	What is the difference between a singly linked list and a doubly linked list?	CO1	B2	05
OR				
Q.2 Attempt the following		Max Marks: 10 (2*5)		
A	Write pseudo code for inserting a node at a beginning position in a Doubly linked list.	CO2	B3	05
B	Define singly linked list? State and explain types of Linked List.	CO 2	B1	05
Q.3 Attempt the following		Max Marks: 10 (2*5)		
A	Write pseudo code for Linear Search.	CO3	B3	05
B	Solve example of merge sort: {1,6,5,4,3,10,5,9,2}	CO3	B3	05
OR				
Q.4 Attempt the following		Max Marks: 10 (2*5)		
A	Solve example of Binary Search {11, 13, 15, 16, 19, 20,22} Search Key element:20	CO4	B3	05
B	Write pseudo code for Bubble Sort.	CO4	B3	05