

RRN	2	1	0	1	9	1	6	0	1	0	0	2
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CONTINUOUS ASSESSMENT TEST- 2 APRIL 2023

Programme & Branch : B.Tech & CSE, CSE(IoT), CSE(CS)
Semester : IV Date & Session : 29/04/2023 & FN
Course Code & Name : CSD 2204 & Operating Systems
Duration : 90 minutes Maximum Marks : 50

ANSWER ALL QUESTION

PART A (5 X 2 = 10 MARKS)

1. How to solve race condition in operating system?
2. Define semaphores.
3. What is a shared page?
4. Differentiate internal and external fragmentation.
5. Why do we need virtual memory?

PART B (2 X 16 = 32 MARKS)

- 6.a (i) Briefly describe the purpose of inter-process communication in a multiprogramming environment. (8)
(ii) Discuss the basic requirements to solve critical section problem. (8)
- (OR)
- b (i) Elucidate how a binary semaphore can be used to implement mutual exclusion among n processes. (8)
(ii) Illustrate the dining philosopher's problem and show how to allocate the resources among several processes. (8)
- 7.a (i) The given memory partitions are 300K, 700K, 400K, 500K and 800K (in order). How would each of the first fit, best fit and worst fit algorithm place processes of 412k, 617k, 312k, and 626k (in order) in these memory partitions? Which algorithm make the most efficient use of memory? (8)
(ii) With a neat sketch explain the concept of segmentation. (8)
- (OR)

CSD 2204

- b (i) Consider the following page reference string:

1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6.

Assuming demand paging with three frames, analyze occurrence of page faults for the following replacement algorithms.

- FIFO replacement
- LRU replacement
- Optimal Replacement

(16)

PART C (1 X 8 = 8 MARKS)

- 8.a (i) Draw resource-allocation graph for the scenario given and demonstrate the corresponding wait-for-graph. Identify deadlock cycle and its possible solution :

R1 allotted to P2 and requested by P1; R2 allotted to P1 and requested by P4; R3 allotted to P5 and requested by P2; R4 allotted to P3 and requested by P2.

(8)

(OR)

- b (i) Consider the snapshot of the system at time t_0 . Apply Banker's algorithm to answer the following:

	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	2	0	1	2	2	0	1	2	2	4	2	1
P1	1	0	0	0	2	7	5	0				
P2	1	3	5	4	2	3	5	6				
P3	0	6	3	2	0	7	5	2				
P4	0	0	1	4	0	7	5	6				

- Is the system in a safe state?
- If P1 requests (1, 4, 2, 0) of additional resources at time t_1 , will the system be in a safe state? Justify.

(8)

OS
 Cat
 Sem

2/2

RRN 2 | 0 | 9 | 1 | 6 | 0 | 1 | 0 | 0 | 2

CONTINUOUS ASSESSMENT TEST- 2 APRIL 2023

Programme & Branch : B.Tech & CSE, CSE(IoT), CSE(CS)
Semester : IV Date & Session : 27/04/2023 AN
Course Code & Name : CSD 2202 & Analysis of Algorithms
Duration : 90 minutes Maximum Marks : 50

ANSWER ALL QUESTIONS

PART A (5 X 2 = 10 MARKS)

1. List any four techniques of divide and conquer.
2. Write the importance of balanced search tree.
3. Compute a^{13} by the left to right binary exponentiation algorithm where n=13.
4. Draw heap tree for the following elements 4,10,1,5,2,7.
5. Define OBST.

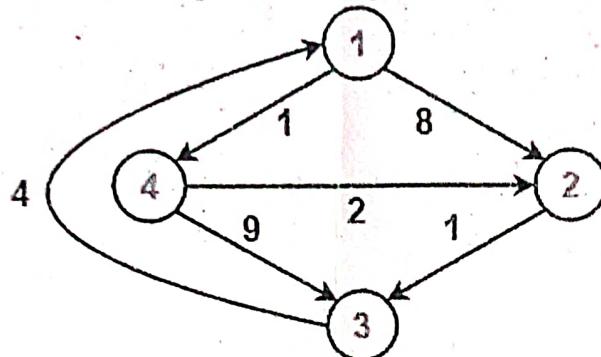
PART B (2 X 16 = 32 MARKS)

- 6.a (i) Apply merge sort for the given list 8,3,2,9,7,1,5,4 and find its time complexity. (10)
(ii) Solve the system by Gaussian Elimination for the equations
 $2x_1 - x_2 + x_3 = 1$, $4x_1 + x_2 - x_3 = 5$ and $x_1 + x_2 + x_3 = 0$. (6)

(OR)

- b (i) Demonstrate quick sort for the following list of elements 52, 37, 63, 14, 17, 8, 6, 25. Write the algorithm and its time complexity. (16)

- 7.a (i) Consider the following directed weighted graph.



Find the shortest path distance between every pair of vertices using Floyd Warshall's Algorithm.

(16)

(OR)

- b (i) Compute the valuable subset of the n items in the table given below which fits the capacity of weight=5 using Knapsack problem and also determine the time complexity.

Item	Weight	Value
1	2	\$12
2	1	\$10
3	3	\$20
4	2	\$15

(16)

PART C (1 X 8 = 8 MARKS)

- 8.a Construct a binary tree from following inorder and preorder traversal.

Inorder Traversal : {4,2,1,7,5,8,3,6}

Preorder Traversal : {1,2,4,3,5,7,8,6}

(8)

(OR)

- b. Apply Strassen's multiplication method to multiply the following two matrices.

$$\begin{bmatrix} 2 & 4 \\ 3 & 5 \end{bmatrix} \cdot \begin{bmatrix} 6 & 5 \\ 1 & 7 \end{bmatrix}$$

Algorithm

(8)

Cost P

Time P

2/2

RRN | 2 | 1 | 0 | 1 | 9 | 1 | 6 | 0 | 1 | 0 | 0 | 2

CONTINUOUS ASSESSMENT TEST- 2 APRIL 2023

Programme & Branch : B.Tech & CSE, CSE(IoT), CSE(CS)
Semester : IV Date & Session : 26/04/2023 & AN
Course Code & Name : CSD 2201 & Computer Communication and Networks
Duration : 90 minutes Maximum Marks : 50

ANSWER ALL QUESTIONS

PART A (5 X 2 = 10 MARKS)

1. Differentiate unicast and multicast addressing.
2. Find the error, if any , in the following IP addresses
 - a. 111.56.045.78
 - b. 221.34.7.8.20
3. State the purpose of ping and traceroute utilities.
4. List the services provided by transport layer protocol.
5. Define piggybacking in terms of transport layer packets.

PART B (2 X 16 = 32 MARKS)

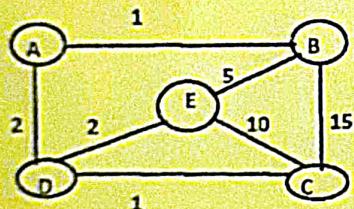
- 6.a (i) Summarize any two IPv4 classful addressing with examples. (8)
(ii) Compare and contrast the services provided by TCP and UDP. (8)
(OR)
- b (i) Illustrate the fundamental of hierarchical routing and state its advantages. (8)
(ii) Express the set up of private network with NAT protocol. (8)
- 7.a (i) Outline the state transition diagram of TCP connection establishment and termination. (8)
(ii) Explain flow control mechanism in connection oriented protocol. (8)
(OR)
- b (i) Demonstrate the various congestion control techniques used to improve QoS of the computer network. (16)

PART C (1 X 8 = 8 MARKS)

- 8.a (i) A newly started IT industry got an IP address range 192.168.252/22 from its nearby ISP. It plans to setup same configured subnets for 8 divisions. Identify the range of IP addresses and subnet addresses for each of the eight divisions. (8)

(OR)

- b (i) Consider the network shown below, generate the shortest path from node C to all other nodes using link-state algorithm. Also update the forwarding table of node C.



(8)

Comp Network

By Mr. Sam
Cost - II

RRN	2	1	0	1	9	1	6	0	1	0	0	2
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CONTINUOUS ASSESSMENT TEST- 2 APRIL 2023

Programme & Branch : B.Tech & CSE(IOT)
Semester : IV Date & Session : 28/04/2023 & AN
Course Code & Name : CSD 2241 & Microprocessor and Embedded System Design
Duration : 90 minutes Maximum Marks : 50

ANSWER ALL QUESTIONS

PART A (5 X 2 = 10 MARKS)

1. List the components of 8051 microcontroller.
2. Draw the bit pattern of PSW in 8051 microcontroller.
3. Differentiate microprocessors and microcontroller.
4. Mention any two characteristics of embedded system.
5. Specify the purpose of embeaded system.

PART B (2 X 16 = 32 MARKS)

- 6.a (i) Explain the pin diagram of 8051 microcontroller with a neat sketch. (16)
(OR)
- b (i) Describe the various addressing modes of 8051 microcontroller with suitable examples. (16)
- 7.a (i) Outline the classification of embedded system. (8)
(ii) Give an overview of major applications of embedded system. (8)
(OR)
- b (i) Explain the quality attributes of embedded system with suitable examples. (16)

PART C (1 X 8 = 8 MARKS)

- 8.a (i) Find the control word format for the following specifications in 8255
Programmable Peripheral Interface
- a) Port A as input, Port B as output in Mode 0
 - b) Set PC5 bit in BSR mode
- (8)
- (OR)
- b (i) Determine the seven segment code display in 8279 Keyboard
display controller for "HELLO,123" (8)

Microprocessor.

IV Sem.

Cast - II

RRN 210191601002

CONTINUOUS ASSESSMENT TEST - 2 MAY 2023

Programme & Branch : B.Tech(Common to all branches)
Semester : IV Date & Session : 04/05/2023 AN
Course Code & Name : GED 2202, Indian Constitution and Human Rights
Duration : 90 Minutes Maximum Marks : 50

ANSWER ALL QUESTIONS

PART A (5 X 2 = 10 MARKS)

1. What are the three pillars of government?
2. What is the required qualification for the President of India?
3. Write down the three powers of the Prime Minister.
4. What do you mean by Human Rights?
5. Expand the following: UNESCO and ILO.

PART B (2 X 20 = 40 MARKS)

- 6.a (i) How are the President and the Vice President of India elected? Explain the powers of the President of India. (10)
(ii) "Election process in India is one of the largest democratic election processes in the world". Substantiate your answer by analyzing the election commission's role in conducting elections in India. (OR) (10)
- b (i) Explain the structure of the Indian Parliament and differentiate between the Lok Sabha and Rajya Sabha. (10)
(ii) "Indian judiciary is free from the influence of the executive and the legislature". Critically analyze the statement by explaining the structure of the Indian Judiciary. (10)
- 7.a (i) Explain the characteristics and types of Human Rights. (10)
(ii) Discuss the various UN mechanisms and agencies for protecting Human Rights. (OR) (10)
- b (i) Compare and contrast human rights in the Universal Declaration (UDHR) and fundamental rights in the Indian constitution. (10)
(ii) Critically appreciate the provisions of the Indian constitution in protecting the Human Rights of women and children in society. (10)

RRN	2	1	0	1	9	1	6	0	1	9	0
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CONTINUOUS ASSESSMENT TEST - 2 MAY 2023

Programme & Branch : B.Tech & CSE, CSE(IoT)

Semester : IV Date & Session : 03/05/2023 AN

Course Code & Name : CSDX 210 & Software Configuration and Risk Management

Duration : 90 minutes Maximum Marks : 50

ANSWER ALL QUESTIONS

PART A (5 X 2 = 10 MARKS)

1. List out tools of version control in SCM.
2. Differentiate version control system and revision control system.
3. Define risk management.
4. State the usage of cloud tools in SCM environment.
5. Identify the any four risks in configuration management.

PART B (2 X 16 = 32 MARKS)

6.a (i) Discuss the SCM tools deployed in software development environment. (16)
 (OR)

b (i) Demonstrate revision control system for SCM tools that enable the user to manage changes to the project's assets. (16)

7.a (i) Elaborate the principle and classification of risks which affect a software project. (16)
 (OR)

b (i) Explain assessment activities in software risk management. (16)

PART C (1 X 8 = 8 MARKS)

8.a Consider an organization that implements cloud based SCM. Apply the cloud-based Jenkins tool in SCM environment and analyze the performance of multiple machines in distributed environment. (8)
 (OR)

- b. Consider Software development industry in Jordan wants to introduce heavy-weight SCM tools like ClearCase for their project. Analyze the reasons intended to solve finance and number of users. (8)

Software
P cat.
IV Sem.

RRN	2	1	0	1	9	1	6	0	1	0	0	2
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CONTINUOUS ASSESSMENT TEST- 2 MAY 2023

Programme & Branch : B.Tech & CSE , CSE (IoT), CSE (CS)
Semester : IV Date & Session : 02.05.2023 & AN
Course Code & Name : **CSD 2205 & DATABASE MANGEMENT SYSTEMS**
Duration : 90 minutes Maximum Marks : 50

ANSWER ALL QUESTIONS

PART A (5 X 2 = 10 MARKS)

1. Why we need normalization in DBMS?
2. List out the problems caused by redundancy.
3. Give the conditions for a table to be in 2NF.
4. Outline the steps involved in query processing.
5. State the need for concurrency control.

PART B (2 X 16 = 32 MARKS)

- 6.a (i) Explain the various types of anomalies with examples. (6)
(ii) Elucidate the types and properties of decomposition in detail. (10)
(OR)
b (i) Discuss the types of functional dependencies with example (6)
(ii) Describe the Armstrong's axioms of functional dependency (10)
- 7.a Discuss in detail about the ACID properties of a transaction. (16)
(OR)
b Explain lock based concurrency control protocol with suitable example. (16)

PART C (1 X 8 = 8 MARKS)

8.a

Consider the following table: User

Userid	Email	Fname	Lname	City	State	Pin
MA12	m@gmail.com	mainis	Jain	chennai	TN	600001
AB45	a@hotmail.com	abdul	rahim	Trichy	TN	620017
CH76	c@ymail.com	chai	bedi	raipur	gujarat	832212
DA74	d@gmail.com	Dany	James	Trichy	TN	620008
LA33	l@gmail.com	Lavel	Dhalla	Kach	Gujarat	832230

- (i) Convert the table to 1NF if required.
- (ii) Is the table in 2NF? Justify and normalize into 2 NF.
- (iii) Proceed to 3NF and give the final relations

(OR)

(8)

b

Consider the following SQL query:

```
SELECT S.sname FROM Reserves R, Sailors S
WHERE R.sid=S.sid AND R.bid=100 AND S.rating>5
```

- (i) Rewrite the query using relational algebra
- (ii) Give the evaluation plan for the given query.

(8)

DBMS.
 Cat - II.
 Sem - II

A.P

→ SQL application

→ application (creating web site).