

**MANJARA CHARITABLE TRUST**  
**RAJIV GANDHI INSTITUTE OF TECHNOLOGY**  
**Department of Computer Engineering**

**MID TERM-I**

**Sub:-Database Management System**  
**Marks-20**

**Div:-T.E. (A&B) A-Y-(2018-19)**  
**Time-1 hr**

**All Questions are compulsory.**

Question No.	Question	Marks	CO
Q.1)	Explain architecture of DBMS in detail. OR Discuss different types of users involves in DBMS.	05	CO1
Q.2)	The company markets its products to wholesaler all over the country and dealers sell them to customers. The company has five regional offices. Salesperson contacts dealers and explain about the products, incentives offered, paring programs for wholesaler. Dealers place orders with the salesperson attached with the regional offices of their locations. After receiving products they make payments in installments. Company would like to develop the system to monitor sale of different products, performance of salespersons and orders from wholesalers. Construct an E-R diagram and convert it into relational tables.	05	CO2
Q.3)	Explain subqueries using various types of operators in SQL. OR Describe the following features for banking system:- i) Atomicity ii) Data Isolation iii) Security iv) Concurrent Data Access.	05	CO4
Q.4)	Write SQL queries for the following database:-  Driver ( <u>driverid</u> , name, address) Car ( <u>license</u> , model, year) Accident ( <u>report_no</u> , <u>date</u> , location) Owns ( <u>driverid</u> , license) Participated ( <u>driverid</u> , <u>report_no</u> , damage_amt, car)  I. { Find total number of drivers who own cars that were involved in an accident in 2017.  II. Find the number of accidents in which car belonging to 'XYZ' were involved.  III. Find the number of accidents that were reported in Mumbai region in the year 2016.  IV. Add a new accident with some data.	05	CO4

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Department Of Computer Engineering  
 SUB: ADVANCED ALGORITHM.

DATE: 18-09-2018  
 Marks: 20

SEM: V  
 CLASS: T.E. (A&B)  
 Every Question carries 5 Marks.

Q.1 How to find complexity by recurrence tree method.

CO1

OR

Q.1 What is Amortized analysis. Explain any one method with example.

CO1

Q.2 Elaborate how probability concept is used in Hiring problem.

CO2

OR

Q.2 What is random variable? Explain indicator random variable.

CO2

Q.3 Explain Las-vegas and Monte-Carlo algorithm.

CO3

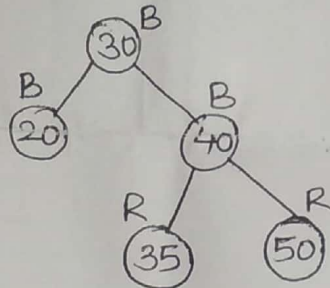
OR

Q.3 What is red-black tree. Perform insert & delete operation for the following red black tree.

CO3

a) Insert 10, 20, 30 & 15 in an empty tree.

b) Delete 20



Q.4. What is heap? Explain binomial trees and binomial heap.

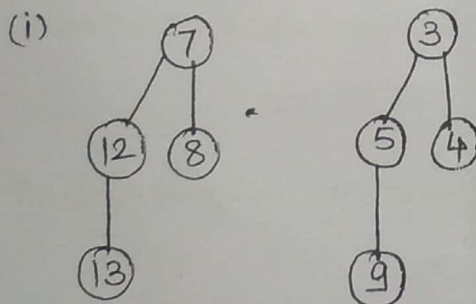
CO3

OR

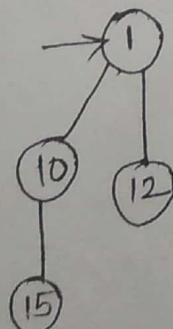
Q.4 Perform operations on following binomial heap.

CO3

a) Perform union on below binomial heap



b) Insert new nodes 5 & 7





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 Department of Computer Engineering  
 Academic Year 2018-2019  
 Mid Term Test – I

Class : T.E.(A and B)  
 Subject : TCS

Marks :20  
 Duration : 1hour

Attempt all Questions. All questions carry equal marks.		CO Mapping																														
Q1. Difference between DFA and NFA. Explain Arden's theorem. OR Design a DFA that ends with either 01 or 10 over $\Sigma = \{0,1\}$		CO2																														
2. Construct a mealy machine for incrementing the value of any binary Number by one. Convert this machine to Moore machine. OR Minimize the DFA given below.	<table border="1"> <thead> <tr> <th>states</th><th>0</th><th>1</th></tr> </thead> <tbody> <tr> <td>→ q0</td><td>q1</td><td>q4</td></tr> <tr> <td>q1</td><td>q2</td><td>q5</td></tr> <tr> <td>*q2</td><td>q3</td><td>q7</td></tr> <tr> <td>q3</td><td>q4</td><td>q7</td></tr> <tr> <td>q4</td><td>q5</td><td>q8</td></tr> <tr> <td>*q5</td><td>q6</td><td>q1</td></tr> <tr> <td>q6</td><td>q7</td><td>q1</td></tr> <tr> <td>q7</td><td>q8</td><td>q2</td></tr> <tr> <td>*q8</td><td>q0</td><td>q4</td></tr> </tbody> </table>	states	0	1	→ q0	q1	q4	q1	q2	q5	*q2	q3	q7	q3	q4	q7	q4	q5	q8	*q5	q6	q1	q6	q7	q1	q7	q8	q2	*q8	q0	q4	CO2
states	0	1																														
→ q0	q1	q4																														
q1	q2	q5																														
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*q5	q6	q1																														
q6	q7	q1																														
q7	q8	q2																														
*q8	q0	q4																														
3. Draw $\epsilon$ -NFA for the regular expression and convert it into equivalent DFA $(11+01)^*$ OR Prove that $0^n 1^n$ is not a Regular Language using pumping lemma.		CO1																														
4. Briefly explain Chomsky hierarchy with example and diagram. OR Design a Grammar for $a^n b^n c^m / n, m \geq 1$ .		CO1																														

6p

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Department Of Computer Engineering

Mid Term Test – 1

Time: 1Hr	Class: -TE(Div A & B) Computer Engineering Subject:- Microprocessor	Max Marks:20	
Q.1	Give architecture of 8086 processor	05	CO1
OR			
Q.1	Explain maximum mode of 8086 processor.	05	CO1
Q.2	Explain following instructions of 8086. DAA, XLAT, LDS, CMPSB, MOVSB	05	CO2
OR			
Q.2	WAP to transfer a 4KB of data from location 4000H to 8000H	05	CO2
Q.3	Draw and Explain Interrupts Structure of 8086 processor.	05	CO3
OR			
Q.3	Explain 8086 Interrupts and it's type.	05	CO3
Q.4	Draw address map for following configuration of 8086 processor. 32KB EPROM using IC 27128 16KB RAM using IC 6264	05	CO5
OR			
Q.4	Draw address map for following configuration of 8086 processor. 128KB EPROM using 32KB chip 64KB RAM using 16KB chip	05	CO5

**Department of Computer Engineering**  
**Academic Year 2018-19**  
**Mid Term Test I**

**Class: T.E Computer (A & B)**  
**Subject: Computer Network**

**Marks : 20**  
**Duration: 1 hr.**

**N.B. 1. Assume suitable data if necessary. 2. Figures to right indicate full marks.**

Q. 1	a	What is OSI model? Explain functions, protocols and devices used in network support layers?	05	CO 1
Or				
Q. 1	b	How would you explain need of layered architecture of network models? Explain data transmission in ISO-OSI network model with headers and trailer.	05	CO 1
Q. 2	a	How would you classify the type of unguided transmission media?	05	CO 1
Or				
Q. 2	b	Explain in brief the following.(Any 5) MAC, SNR, Bandwidth, Baud rate, Bit rate, piggybacking, circuit switching.	05	CO 1
Q. 3	a	What is CRC? Design CRC encoder and decoder for Data: 111110 and Divisor 10101.	05	CO 2
Or				
Q. 3	b	Compare any two flow control protocols for Noisy channel.	05	CO 2
Q. 4	a	Suppose a router has built up the routing table as shown below. The router can deliver packets directly over interfaces 0 and 1, or it can forward packets to routers R2, R3 or R4. Describe what the router does with a packet addressed to each of the following destinations: (a) 128.96.39.10 (b) 128.96.40.12 (c) 128.96.40.151 (d) 192.4.153.17 (e) 192.4.153.90	05	CO 2
Or				
Q. 4	b	An ALOHA protocol is used to share 28 kbps satellite channel. If each packet is 500bits long, Find maximum throughput for Pure ALOHA and Slotted ALOHA system.	05	CO 2

Pantam