USN					



Internal Assessment Test 1 – June 2024

Sub	: Database Management System					Sub Code:	BCS403	Branc	h: CSE			
Dat	e:	4.6.2024	Duration:	90 mins	Max Marks:	50	Sem / Sec:	IV/	A, B, C		OB	BE
			An	swer any FI	VE FULL Quest	<u>ions</u>				MARKS	CO	RBT
1	(i) V	With a neat diag	gram explain	the Three-S	Schema Archite	cture	•			[5]	CO1	L2
	<u>(ii)</u>	Differentiate th	ne following:							[5]	CO1	L2
	a)	Database Sche	ma vs Datab	ase State								
	b)	Composite attr	ribute vs Mu	ltivalued attı	ribute							
2	Cor	sider the Datal	base schema:	Product (Pr	oduct-id, Produ	ıct-na	ame, Price, C	Customer-ID,		[10]	CO2	L3
	Pur	chase-Year)										
	Wri	te SQL stateme	ents to:									
	i.	Create the	table and Ins	sert 5 record	s. Include possi	ble c	onstraints in	the DDL state:	ment.			
	ii. Retrieve names of all products whose price is less than 10,000 and purchased before											
	2024.											
	iii. Find count of products purchased by each customer. Considering the customer, sort											
	the result in descending order.											
	iv. Delete all the records for the Product "Mobile".											
	v. Update Price of the Keyboard Product from 15,000 to 20,000.											
3	Wit	h exam <mark>ple den</mark>	nonstrate var	ious constra	ints applicable t	o Re	lational Mod	el.		[10]	CO1	L2

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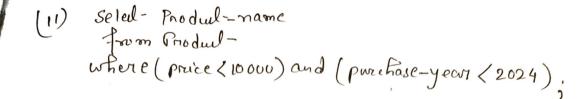
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Sub	b: Database Management System Sub C			Sub Code:	BCS403	Branc	h: CSE						
Dat	e:	4.6.2024	Duration:	90 mins	Max Marks:	50	Sem / Sec:	IV/	A, B, C		OE	OBE	
			An	swer any FIV	/E FULL Quest	ions				MARKS	CO	RBT	
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	d)	Composite attr	ribute vs Mu	ltivalued attr	ribute								
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3	Wit	th example den	nonstrate var	ious constrai	nts applicable t	o Re	lational Mod	el.		[10]	CO1	L2	
	With example demonstrate various constraints applicable to Relational Model. [10]												

4	Draw the ER diagram and Schema diagram for the following Database: Hospital (HID, HName, Loaction); Doctor (DID, Dname, HID, Specialty); Patient (PID, Pname, DID, Age); Receptionist (RID, RName, HID); Record (PID, DID, Appointment-Type). → The Hospital has Doctors and Receptionist. Receptionist maintains Record. Doctor treats	[7+3]	CO1	L3
	patients.			
5	Consider the Hospital database: Hospital (<u>Reg-no</u> , Doctor-id , Patient-id , Fee-paid , Consult_Year)	[10]	CO2	L3
	Write relational algebraic expressions for the following questions:			
	i. Find the list of patients who paid above 1,000 /- fees under the supervision of doctor-id 13.			
	ii. Find only the Doctor -id and Patient-ids for the consultation Year 2023.			
	iii. Rename the resulting relation from the previous step to New-Hospital including its attributes.			
	iv. Find the count of patients assigned to each doctor and also the average fee amount paid for each doctor.			
	v. Find the list of patients for whom either the fee-paid>2,000 or Consultation year is 2022.			
6	Stepwise with neat diagram demonstrate ER to Relational Mapping	[10]	CO1	L2

			1	
4	Draw the ER diagram and Schema diagram for the following Database:	[7+3]	CO1	L3
	Hospital (HID, HName, Loaction); Doctor (DID, Dname, HID, Specialty); Patient (PID, Pname,			
	DID, Age); Receptionist (RID, RName, HID); Record (PID, DID, Appointment-Type).			
	→ The Hospital has Doctors and Receptionist. Receptionist maintains Record. Doctor treats			
	patients.			
5	Consider the Hospital database: Hospital (Reg-no, Doctor-id, Patient-id, Fee-paid,	[10]	CO2	L3
	Consult_Year)			
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	i. Find the list of patients who paid above 1,000 /- fees under the supervision of doctor-id			
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6	Stepwise with neat diagram demonstrate ER to Relational Mapping	[10]	CO1	L2

2023-24 Even 13CS403 - Database Managemen I-System (June-2024) IATI: Answer Key and Soution (5M) (1) (i) Three Schema Architecture External n'en External new External Level External - Conceptual Conceptual Schema Conceptual level Conceptual-Internal Internal Schema Internal level Stoned Database Internal Schema: Describes the physical storage structure. Conceptual Schema: Describes entities, datatipes, yelationships External Schema: Describes part of a DB thal-a particular user group is interested to view. (ii) a) Database Schema: - Logical structure of a Database. Studen1-USN Name | Dept-no Dept-no | Dept-name Database State: - The data in the database at-a Particular moment in time. Studen1-Name Dept-no Havi

(b) composite Attribute: - Consists of smaller subparts or sub attributes. example: addgess lane (city) (Pin-code Multivalued Attnibute: -Can have multiple values. (Med) Gre 2) (i) create table Product (Prodult id int primary key,
Prodult name varefore (40), IOM Prace int not null, Censterner - ID int, Purchase - year int) Insert-into Product- values (1, mobile, 1000, 10, 2020) (2, keyboard, 15,000, 20, 2021)
(3, Pruinter, 9000, 30, 2019)
(4, Monitor, 10000, 30, 2024) (5, speaker, 12000, 20, 2024) j.



- (III) Select Count-(Produl-id) as C-Prood, Customer ID

 From Product Group by Contomer ID

 Order by Customer ID DESC;

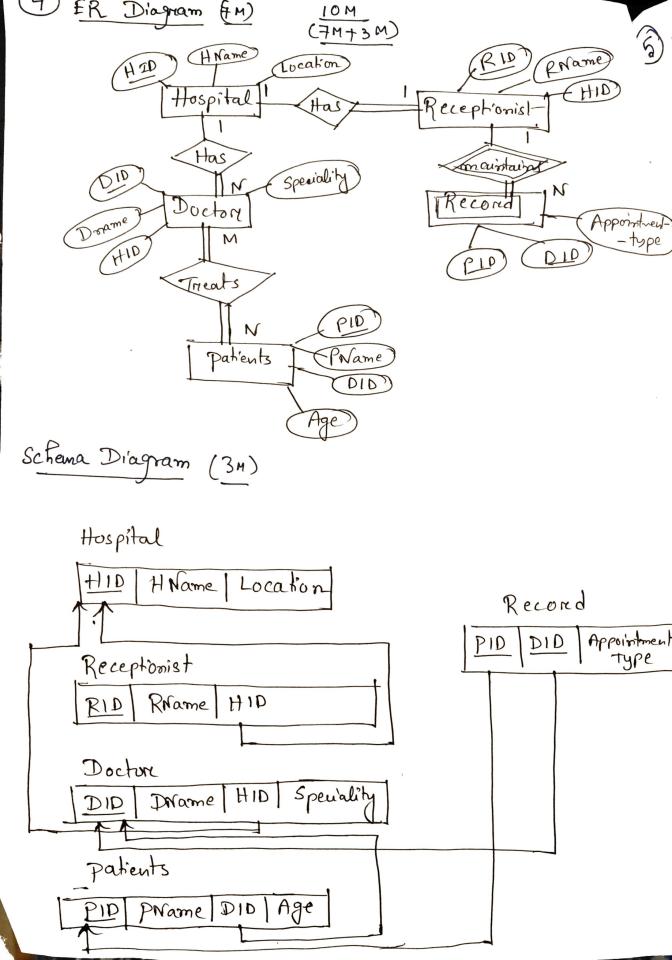
 IV)

 Delete from Product Where Product name = UM obile";
- (V) update Produl-Sel- Price = 20 000 Where Produl-name = "Keyboard" and price = 15000;
- (3) Relational Model Constraints: (10M)
 - 1) Domain Constraint :- within each tuple, the value of each attnibute must be atomic.
 - 2) Key constraint : _ L'unique constraint -
 - (3) Entity Integrity constraint ?- Powmowy key cannol-be null.
 - (4) Referential Integrity Constraint in

 A type in one yelation that refers to another

 Melation must refer to an existing typle in that

 yelation.



(Hopthe) The (Tee-paid > 1000) ^ (doctor-id = 13) (") Tootor-id, patient-id (Consult-years = 2023 (111) RI + Tootor-id, patient-id (Toosull-year=2023) (RI)
New-Hospital
(RI) (V) Doctorial Scount patient To AVG Fee-paid (Hospital) (V) TT patient-id (Office-paid) 2000) V (consult-year = 2022) 6 ER-to Relational Mapping Steps (10M) (i) Mapping of Regular entry types (") mapping of Weak entity types (ii) Mapping of Binary 1:1 newforship tope (iv) mapping of Binary I: N Metationshiptspe (1) mapping of Binory MIN Metalionship tope (vi) Mapping of multivalued attruibute (vii) Mapping of N-ary relationship type.