SRM Institute of Science and Technology
College of Engineering and Technology
School of Computing
Academic Year: 2022-23 (EVEN)

Batch 2- Set C

ANSWER KEY

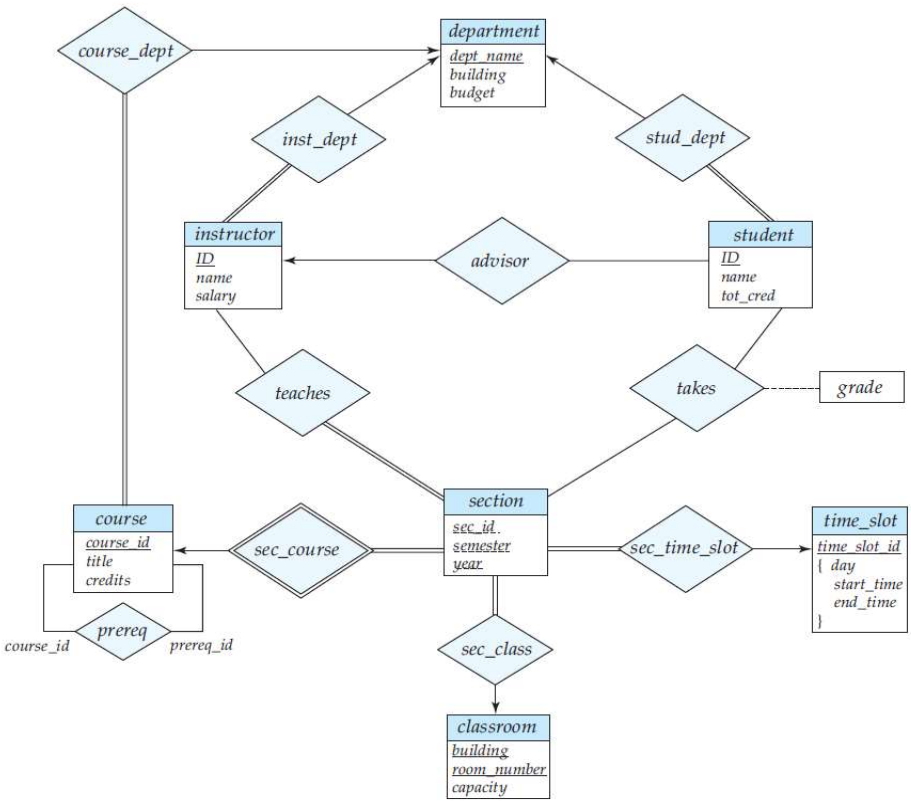
Test: CLA-T2 **Date: 12-04-2023**
Course Code &Title: 18CSC303J Database Management Systems **Duration:12.30 pm to 2.15 pm**
Year & Sem: III Year / VISem **Max. Marks:50**
Instruction: MCQs to be collected within first 15 minutes

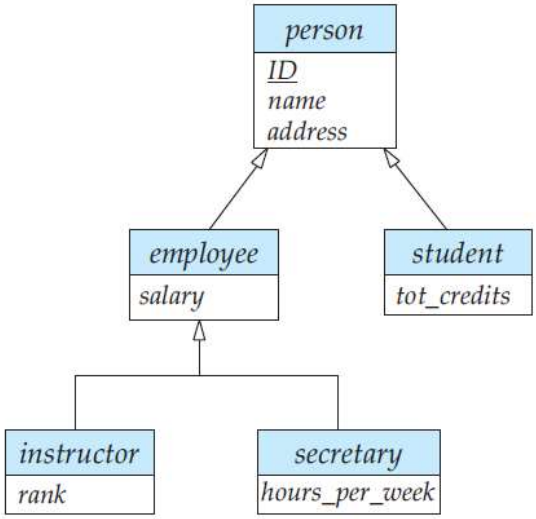
Course Articulation Matrix:

S.No.	Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	CO2	H	M	L									
2	CO3	H	M	L									
3	CO4	H	M	L									

Part – A MCQ(10x 1 =10Marks)Instructions: Answer all						
Q. No	Question	Marks	BL	CO	PO	PI Code
1	An entity set that does not have enough _____ to form a _____ is a weak entity set. (a) **attribute, primary key**(b) records, foreign key (c) records, primary key (d) attribute, foreign key.	1	1	2	1	1.6.1
2	A weak entity set needs to be connected to a stronger entity set, known as the (a)**Identifying set** (b) Owner set (c) Neighbour set (d) Strong entity set	1	2	2	1	1.6.1
3	An album would be regarded as a(n) ____ if you were compiling and keeping data regarding your musical collection. (a) Relation**(b) Entity** (c) Instance (d) Attribute	1	1	2	1	1.6.1
4	The term specialization refers to a ___ of a set of entities which share some distinguishing characteristics. **(a) Subset** (b) Set (c) Superset (d) Upper set	1	2	2	1	1.6.1
5	Consider the below entity sets and their relationship. Identify the discriminator and primary-key of the weak entity set. Course-details (course-code, course-name, semester, grade) Student-details (register-number, stu-name, stu-address, degree-name) (a) course-code, (course-code, course-name) (b) register-number, (course-code, register-number) **(c) course-code, (course-code, register-number)** (d) register-number, (course-code, course-name)	1	1	2	1	1.6.1
6	The CREATE TRIGGER statement is used to create the trigger. THE _____ clause specifies the table name on which the trigger is to be attached. The _____ specifies that this is an AFTER-INSERT trigger. (a) for insert, on **(b) On, for insert**(c) For, insert (d) None of the mentioned	1	2	4	2	2.7.2
7	Which data manipulation command is used to combines the records from one or more tables? (a)SELECT (b) PROJECT**(c) JOIN** (d) PRODUCT	1	1	4	1	1.6.1
8	Check the correct option which deletes the Views. (a) DELETE VIEW view_name; (b) DROP VIEW view_name/table_name; (c)**DROP VIEW view_name;** (d) DROP VIEW table_name;	1	1	4	2	2.6.1
9	The set of rows the cursor holds at a point is called as (a)Inactive set (b) Simple Set (c) **Active Set** (d) Complex Set	1	2	4	2	2.6.1
10	Which of the following is not Constraint in SQL? (a)Primary Key (b) Not Null (c) Check**(d) Union**	1	1	4	2	2.6.1

Batch 2- Set C

	Part – B(4 x4= 16 Marks) Instructions: Answer any 4					
11.	Brief the major components in an E-R diagram with an example. **Solution:** ✓ Rectangles divided into two parts represent entity sets. ✓ Diamonds represent relationship sets. ✓ Undivided rectangles represent the attributes of a relationship set. ✓ Attributes that arepart of the primary key is underlined. ✓ Lines link entity sets to relationship sets. ✓ Dashed lines link attributes of a relationship set to the relationship set. ✓ Double lines indicate total participation of an entity in a relationship set. ✓ Double diamonds represent identifying relationship sets linked to weak entity sets.  University Database Example Any other examples with all the components can be considered.	4	3	2	2	2.7.2
12.	Provide an example for specialization in extended ER model and Illustrate. **Solution:** **Specialization:** An entity set may include subgroupings of entities that are distinct in some way from other entities in the set. For instance, a subset of entities within an entity set may have attributes that are not shared by all the entities in the entity set. The E-R model provides a means for representing these distinctive entity groupings. The entity set person may be further classified as one of the following: • employee. • student. Each of these person types is described by a set of attributes that includes all the attributes of entity set person plus possibly additional attributes. For example, employee entities may be described further by the attribute salary, whereas student entities may be described further by the attribute tot cred. The process of designating subgroupings within an entity set is called specialization. The specialization of person allows us to distinguish among person entities according to whether they correspond to employees or students	4	3	2	1	1.6.1

						
13.	Consider the following schema: Course (Course_id,Course_name)Subject (Subject_id,Subject_name) Assigned_to (Subject_id, Course_id) a) How many tables will be created using the above scenario and also show the table? **Solution:** Two Tables Needed. Course Table and Subject Table b) What will be the foreign key? **Solution:** Subject_id, Course_id are the Foreign Keys.	4	3	2	2	2.6.1

14.	Write a PL/SQL code to check the number is odd or even.
	Solution:
	
	DECLARE
	n1 NUMBER :=&num1;
	BEGIN
	-- test if the number provided by the user is even
	IFMOD(n1,2)=0THEN
	DBMS_OUTPUT.PUT_LINE ('The number. '||n1||
	' is even number');
	ELSE
	DBMS_OUTPUT.PUT_LINE ('The number '||n1||' is odd number.');
	ENDIF;
	DBMS_OUTPUT.PUT_LINE ('Done Successfully');
	END;
	/
		4	3	4	2	2.6.1

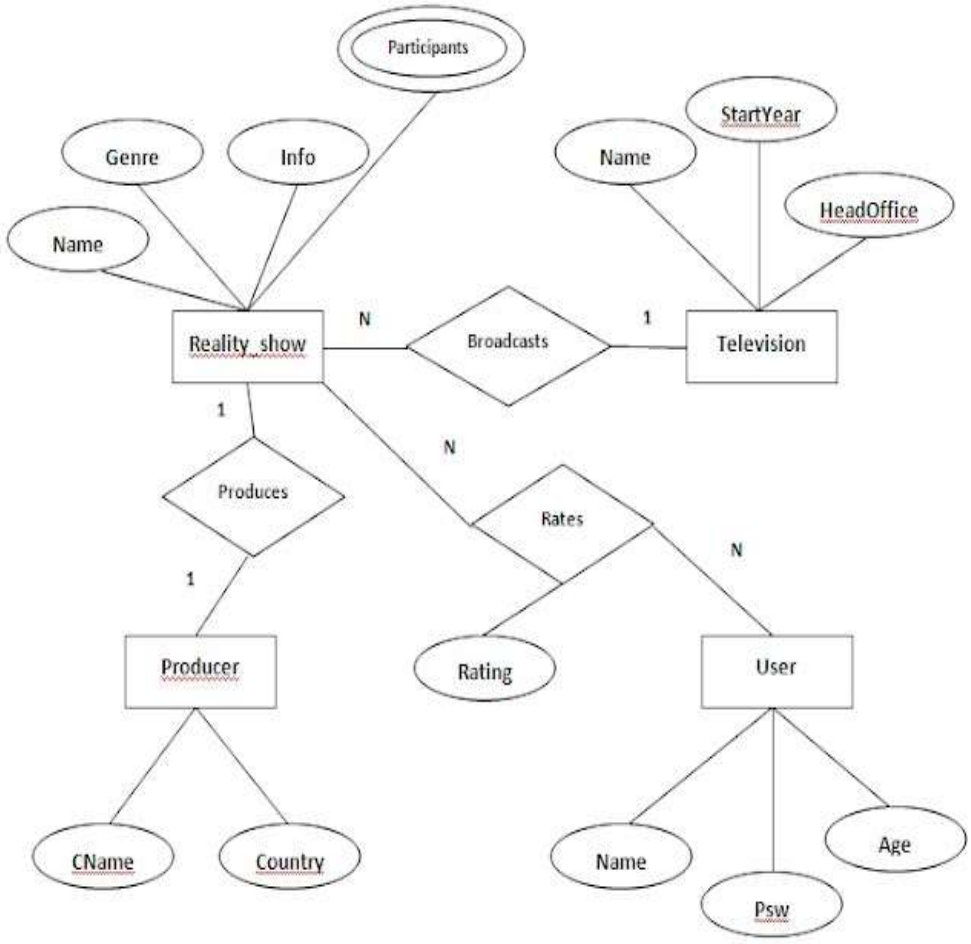
15.	List the three transaction control commands with its purpose. **TCL commands** consist of the below commands: **1.** Commit **2.** RollBack **3.** SavePoint	4	3	4	2	2.6.1
	Part – C (2 x 12 = 24 Marks)Answer All					
16.	a.)Consider the below Scenario: Suppose that you are designing a schema to record information about reality shows on TV. Your database needs to record the following information: _ For each reality show, its name, genre, basic_info and participant's name. Any reality show has at least two or more participants. _ For each producer, the company name, company country. A show is produced by exactly	12	4	3	3	3.6.2

one producer. And one producer produces exactly one show.
_ For each television, its name, start year, head office. A television may broadcast multiple shows. Each show is broadcasted by exactly one television.
_ For each user, his/her username, password, and age. A user may rate multiple shows, and a show may be rated by multiple users. Each rating has a score of 0 to 10.

Draw an entity relationship diagram for this database and brief the concepts involved.

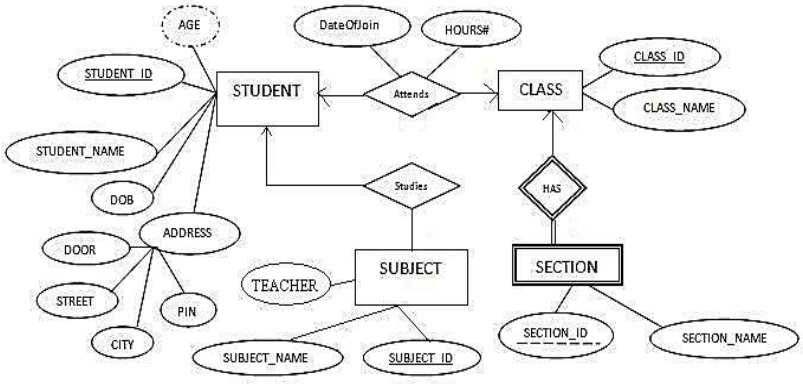
Solution:

- Explanation of ER diagram components (4 marks)
- ER Diagram (8 marks)



(OR)

b.)How can a company convert an ER (Entity Relationship) diagram to a relational table? Convert an ER diagram to a relational table for the given image:



Solution:

- Applying the rules, minimum 5 tables will be required. (8 marks)

- Relations (4 marks)

ER components	Given component	Result
Strong Entity Set Rule: Strong entity set can be directly converted into table.	(a) STUDENT (b) SUBJECT (c) CLASS	(a) STUDENT (Student_ID, Student_Name, DOB, Address) (b) SUBJECT (Subject_ID, Subject_Name, Teacher) (C) CLASS (Class_ID, Class_Name)
Derived attribute Rule: No need to create a column in the table for derived attribute.	Age in STUDENT table	No changes
Composite attribute Rule: Replace the composite attribute with its component attributes.	Address in STUDENT table	STUDENT (Student_ID, Student_Name, DOB, Door, Street, City, Pin)
1-1, 1-n, and n-1 Relationships Rule: Include the primary key of one side entity set as the foreign key of other side entity set.	Attends (1-1 from STUDENT to CLASS) Studies (1-n from STUDENT to SUBJECT)	CLASS (Class_ID, Class_Name, Student_ID) SUBJECT (Subject_ID, Subject_Name, Teacher, Student_ID)
Descriptive attribute Rule: An attribute that is part of a relationship is descriptive. Include the descriptive attributes to 1 side as shown above.	DateOfJoin, Hours# of Attends relationship.	CLASS (Class_ID, Class_Name, Student_ID, DateOfJoin, Hours#)
Weak entity set Rule: Weak entity set is totally participated (existence dependent) on the strong entity set. Include the primary key of strong entity set into the weak entity set as foreign	(d) SECTION	SECTION (Section_ID, Section_Name, Class_ID)

key.			
Weak relationship Rule: No need to create as a table. If created, then the table is redundant.	Has	No changes	

Final set of relation schemas: (Primary keys are underlined)

- STUDENT (Student_ID, Student_Name, DOB, Door, Street, City, Pin)
- CLASS (Class_ID, Class_Name, Student_ID, DateOfJoin, Hours#)
- Student_ID is the foreign key refers STUDENT table
- SUBJECT (Subject_ID, Subject_Name, Teacher, Student_ID)
- Student_ID is the foreign key refers STUDENT table
- SECTION (Section_ID, Class_ID, Section_Name)
- Class_ID is the foreign key refers CLASS table

17. a.)The Company named SpinBall is organising an annual Event. In connection to that the company likes to highlight all the employees who have received awards in the last year. The company maintains two tables to store the details of the employees and the award received details as follows. 12 | 4 | 4 | 3 | 3.6.2

Employee (ID,Name,Salary,Role)
Award (ID,Employee_ID,Award_Date)

ID	Name	Salary	Role
1	Rahul	10000	Developer
2	Vinoth	10000	Manager
3	Madhan	30000	Developer
4	Raajesh	40000	Manager
5	Vishnu	50000	Developer
6	Praveen	75000	Analyst

ID	Employee_ID	Award_Date
1	1	2022-04-01
2	2	2022-05-01
3	6	2022-05-12

Write queries to retrieve the following information.

a) Select all employees who won an award. (3marks)
b) Select all Developers who earn more than any Manager(3 marks)
c) Select all employees who never won an award(3marks)
d) Delete the Employee information who has received award number 1.(3 marks)

Solution

a) Select all employees who won an award.
```
SELECT id, name FROM employees
WHERE id IN (SELECT employee_id FROM awards);
```
b) Select all **Developers** who earn more than any **Manager**
```
SELECT * FROM employees
WHERE role = 'Developer'
AND salary > ANY (
  SELECT salary FROM employees WHERE role = 'Manager');
```
c) Select all employees who never won an award.
```
SELECT id, name FROM employees
WHERE id NOT IN (SELECT employee_id) FROM awards);
```
d) Delete the Employee information who has received award number 1.
```
Delete from Employee where ID IN (Select Employee_ID From Awards where
Award number = 1);
```

Or

17.b.i) Create a table studentinfo with the following attributes (5marks)

Student info(Sid, Name, Sub1_marks, Sub2_marks, Sub3_marks, Sub4_marks, Sub5_marks,Total,Avg)
Write and execute the trigger for the above schema before inserting the records to calculate the total and average.
ii.) Demonstrate the syntax of triggers and list the key advantage of Triggers in SQL (7 marks)

Solution:

i. create table student1 (sidnumber(10),name varchar2(20),subj1 number(10),subj2 number(10), subj3 number(10),subj4 number(10), subj5 number(10),total number(10),avg number(10));

>>desc student1;

```
create or replace trigger stud_marks
before INSERT on student1
for each row
begin
:new.total := :new.subj1+ :new.subj2+:new.subj3+ :new.subj4+:new.subj5;
:new.avg := :new.total/5;
end;
```

ii.
create trigger [trigger_name]: Creates or replaces an existing trigger with the trigger_name.
[before | after]: This specifies when the trigger will be executed.
{insert | update | delete}: This specifies the DML operation.
on [table_name]: This specifies the name of the table associated with the trigger.
[for each row]: This specifies a row-level trigger, i.e., the trigger will be executed for each row being affected.
[trigger_body]: This provides the operation to be performed as trigger is fired