

<b>Name:</b>	 <b>UPES</b> UNIVERSITY WITH A PURPOSE
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2019**

<b>Course:</b> Advanced Database Management Systems	<b>Semester:</b> III
<b>Program:</b> B.Tech. Computer Science+CL/IPR	<b>Time :</b> 03 hrs.
<b>Course Code:</b> CSEG 2005	<b>Max. Marks:</b> 100

**Instructions:**

**SECTION A**

S. No.		Marks	CO
Q 1	Differentiate between a specialization hierarchy and a specialization Lattice with an example.	4	CO1
Q2	Explain the storage organization of magnetic disk. Also support your explanation with a neat diagram.	4	CO2
Q3	“We have at most one primary or clustering index on a file, but several Secondary indexes.” Discuss	4	CO3
Q4	Discuss the limitation of the binary locking mechanism and the solution provided by shared/exclusive locks for practical implementation in the database.	4	CO4
Q5	State additional functions DDBMS have over a centralized DBMS?	4	CO5

**SECTION B**

Q 6	Consider the following relations for a database that keeps track of student enrollment in courses and the books adopted for each course:  STUDENT ( <u>SSN</u> , Name, Major, Bdate)  COURSE ( <u>Course#</u> , Cname, Dept)  ENROLL ( <u>SSN</u> , <u>Course#</u> , <u>Quarter</u> , Grade)  BOOK_ADOPTION ( <u>Course#</u> , <u>Quarter</u> , Book_ISBN)  TEXT ( <u>Book_ISBN</u> , Book_Title, Publisher, Author)  <b>Draw a relational schema diagram specifying the foreign keys for this schema.</b>	10	CO1
OR			

Q 6

a) Identify and explain different types of constraints implemented in the figure.  
 b) To what classification does “Engineering\_manager” subclass belongs? Give reason.

10 CO1

Q 7	Discuss the collision resolution methods for internal hashing.	10	CO2
Q 8	Give an account of problems that occur when concurrent execution is uncontrolled?	10	CO3
Q 9	Explain the significance of fragmentation in relation of Distributed database. Also, specify its types.	10	CO5

**SECTION-C**

Q 10

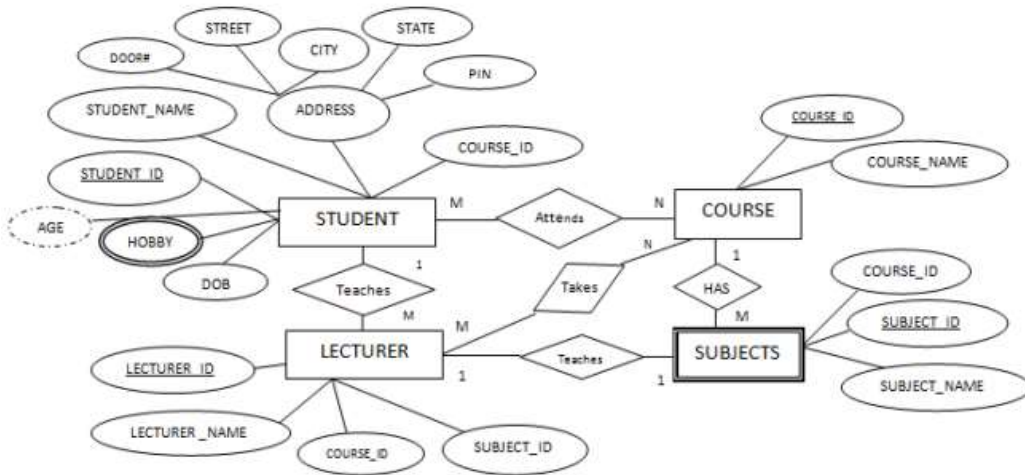
Column Name	Data Type	Width	Attributes
Employee_id	Character	10	PK
First_Name	Character	30	NN
Last_Name	Character	30	NN
DOB	Date		
Salary	Number	25	NN
Department_id	Character	10	

**Implement the following using SQL for the above relation of “EMPLOYEES”:**  
 a) Create an index of name employee\_idx on EMPLOYEES with column Last\_Name, Department\_id.  
 b) Find the ROWID for the below table and create a unique index on employee\_id column of the EMPLOYEES.  
 c) Create a unique and composite index on employee\_id and check whether there is duplicity of tuples or not.  
 d) Drop the function based index on column Last\_Name

Q 11 **Convert the following ER diagram to relational schema, explaining each step of conversion.**

CO2 20

20 CO1



OR

Q 11 Specify minimum number of tables required to convert the following ER to Relational Database Schema and write relations along with its attributes. Also state the primary key in each relation.

