	B.M.S COLLEGE OF ENGINEERING, BANGALORE-19 (Autonomous Institute, Affiliated to VTU) <b>Computer Science &amp; Engineering</b>		
	<b>INTERNALS-1</b>		
<b>Course Code: 19CS4PCDBM</b>	<b>Course Title: Database Management Systems</b>		
<b>Semester:4</b>	<b>Maximum Marks: 40</b>	<b>Date:18-05-2021</b>	
<b>Faculty Handling the Course:</b>	Dr. KVN, Prof. VBM, Dr. SKS, Dr. KPM		
<b>Instructions: <i>Internal choice is provided in Part C.</i></b>			

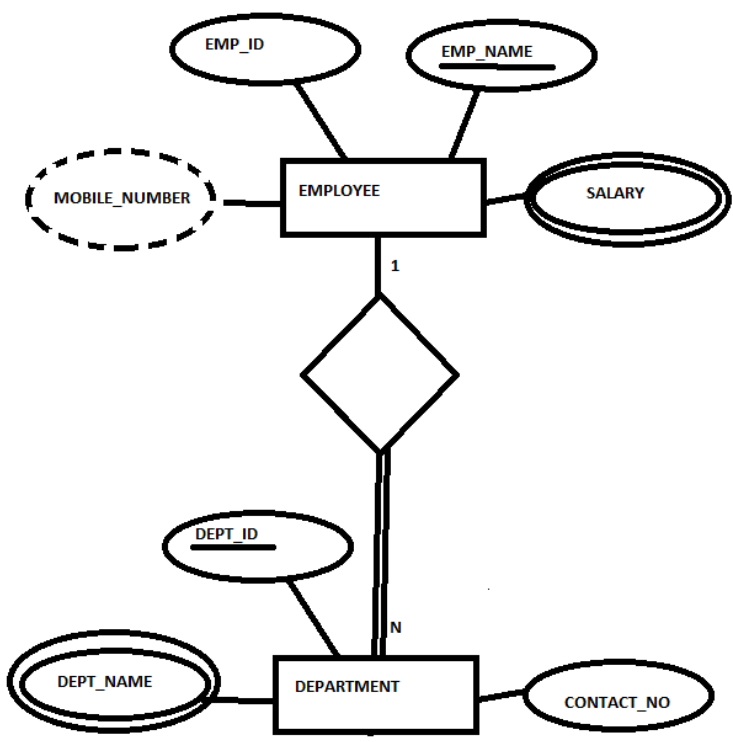
**PART-A**

**Total 5 Marks (No Choice)[CO1-PO1]**

No.	Question	Marks
1	List and explain main characteristics of database approach.	5

**PART-B**

**Total 15 Marks (No Choice)[CO2-PO2]**

No.	Question	Marks
2a	<p>Analyze the below given ER diagram, mention the mistakes and write the corrected diagram.</p>  <pre> graph TD     EMPLOYEE[EMPLOYEE]     DEPARTMENT[DEPARTMENT]     EMPLOYEE -- 1 --&gt; Relationship  DEPARTMENT     EMPLOYEE --- EMP_ID((EMP_ID))     EMPLOYEE --- EMP_NAME((EMP_NAME))     EMPLOYEE -.- MOBILE_NUMBER((MOBILE_NUMBER))     EMPLOYEE --- SALARY(((SALARY)))     DEPARTMENT --- DEPT_ID((DEPT_ID))     DEPARTMENT --- DEPT_NAME(((DEPT_NAME)))     DEPARTMENT --- CONTACT_NO((CONTACT_NO))   </pre>	5

<p><b>2b</b></p>	<p>Analyze the following SQL queries, identify the mistake if any and rewrite the correct SQL query.</p> <p>Sample Data:</p> <table border="1" data-bbox="280 244 829 645"> <thead> <tr> <th>USN</th><th>Subject_name</th><th>marks</th></tr> </thead> <tbody> <tr> <td>1BM14CS001</td><td>JAVA</td><td>40</td></tr> <tr> <td>1BM14CS002</td><td>DBMS</td><td>20</td></tr> <tr> <td>1BM14CS001</td><td>DBMS</td><td>30</td></tr> <tr> <td>1BM14CS002</td><td>JAVA</td><td>20</td></tr> <tr> <td>1BM14CS003</td><td>DBMS</td><td>10</td></tr> </tbody> </table> <p>a. Display subject name with the average marks greater than 25</p> <pre>select subject_name, avg(marks) from student where avg(marks) &gt; 25 group by subject_name;</pre> <p>b. Display USN of the student got maximum marks in each subject</p> <pre>select USN, subject_name from student where marks = (select max(marks) from student group by subject_name);</pre>	USN	Subject_name	marks	1BM14CS001	JAVA	40	1BM14CS002	DBMS	20	1BM14CS001	DBMS	30	1BM14CS002	JAVA	20	1BM14CS003	DBMS	10	<p><b>5</b></p>
USN	Subject_name	marks																		
1BM14CS001	JAVA	40																		
1BM14CS002	DBMS	20																		
1BM14CS001	DBMS	30																		
1BM14CS002	JAVA	20																		
1BM14CS003	DBMS	10																		
<p><b>2c</b></p>	<p>Analyze the below given SQL query and write another solution (SQL query) to get the same result.</p> <p>i. <code>SELECT * FROM table_test1 WHERE col_t1 NOT IN (SELECT col_t1 FROM table_test2);</code></p> <p>ii. <code>SELECT p_name, p_cost FROM product WHERE p_id=(SELECT product_id FROM sale WHERE s_price=2000 AND product_id=product.id );</code></p>	<p><b>5</b></p>																		

## PART- C

**Total 20 Marks (Choice between question 3a & 3b, choice between question 4a & 4b)[CO3-PO3]**

No.	Question	Marks																																																																																													
3a	Given the following database design (Faculty and Department):	10																																																																																													
	<table><tr><td><u>FID</u></td><td>F_Name</td><td>Address</td><td>Salary</td><td>DNUM</td></tr></table> <div><div>↑</div><div>↙</div></div> <table><tr><td><u>HOD_ID</u></td><td>Dept_Name</td><td>DNUM</td></tr></table>		<u>FID</u>	F_Name	Address	Salary	DNUM	<u>HOD_ID</u>	Dept_Name	DNUM																																																																																					
	<u>FID</u>		F_Name	Address	Salary	DNUM																																																																																									
<u>HOD_ID</u>	Dept_Name	DNUM																																																																																													
Write SQL query to the followings:																																																																																															
<div><div>i.</div><div>List Faculty Name, Address and Salary who work for department number 20 and salary is greater than or equal to 10000.</div></div> <div><div>ii.</div><div>List department name and HOD name for each department.</div></div> <div><div>iii.</div><div>Create a view to access Faculty Name, Address and Department Name.</div></div> <div><div>iv.</div><div>Add NOT NULL constraints to Faculty Name in the Faculty Table.</div></div> <div><div>v.</div><div>List the names of the faculty whose salary is least in each department</div></div>																																																																																															
OR																																																																																															
3b	Write the SQL query for the below given database:	10																																																																																													
	EMP and DEPT table																																																																																														
	<table><tr><td>EMPNO</td><td>ENAME</td><td>JOB</td><td>MGR</td><td>HIREDATE</td><td>SAL</td><td>COMM</td><td>DEPTNO</td></tr><tr><td>7369</td><td>SHYAM</td><td>CLERK</td><td>7902</td><td>17-Dec-80</td><td>800</td><td></td><td>20</td></tr><tr><td>7499</td><td>RUBY</td><td>SALESMAN</td><td>7698</td><td>20-Feb-81</td><td>1600</td><td>300</td><td>30</td></tr><tr><td>7521</td><td>JAMES</td><td>SALESMAN</td><td>7698</td><td>22-Feb-81</td><td>1250</td><td>500</td><td>30</td></tr><tr><td>7566</td><td>RAM</td><td>MANAGER</td><td>1234</td><td>02-Apr-81</td><td>2975</td><td></td><td>20</td></tr><tr><td>7654</td><td>KIRAN</td><td>SALESMAN</td><td>7698</td><td>28-Sep-81</td><td>1250</td><td>1400</td><td>30</td></tr><tr><td>7698</td><td>KARAN</td><td>MANAGER</td><td>1234</td><td>01-May-81</td><td>2850</td><td></td><td>30</td></tr><tr><td>7782</td><td>ARUN</td><td>MANAGER</td><td>7839</td><td>09-Jun-81</td><td>2450</td><td></td><td>10</td></tr><tr><td>7788</td><td>PREM</td><td>ANALYST</td><td>7566</td><td>09-Dec-82</td><td>3000</td><td></td><td>20</td></tr><tr><td>1234</td><td>RAJ</td><td>PRESIDENT</td><td></td><td>17-Nov-81</td><td>5000</td><td></td><td>10</td></tr></table> <div><div></div><table><tr><td>DEPTNO</td><td>DNAME</td><td>LOC</td></tr><tr><td>10</td><td>ACCOUNTING</td><td>DELHI</td></tr><tr><td>20</td><td>RESEARCH</td><td>BANGALORE</td></tr><tr><td>30</td><td>SALES</td><td>CHENNAI</td></tr><tr><td>40</td><td>OPERATIONS</td><td>BOMBAY</td></tr></table></div>		EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO	7369	SHYAM	CLERK	7902	17-Dec-80	800		20	7499	RUBY	SALESMAN	7698	20-Feb-81	1600	300	30	7521	JAMES	SALESMAN	7698	22-Feb-81	1250	500	30	7566	RAM	MANAGER	1234	02-Apr-81	2975		20	7654	KIRAN	SALESMAN	7698	28-Sep-81	1250	1400	30	7698	KARAN	MANAGER	1234	01-May-81	2850		30	7782	ARUN	MANAGER	7839	09-Jun-81	2450		10	7788	PREM	ANALYST	7566	09-Dec-82	3000		20	1234	RAJ	PRESIDENT		17-Nov-81	5000		10	DEPTNO	DNAME	LOC	10	ACCOUNTING	DELHI	20	RESEARCH	BANGALORE	30	SALES	CHENNAI	40
EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO																																																																																								
7369	SHYAM	CLERK	7902	17-Dec-80	800		20																																																																																								
7499	RUBY	SALESMAN	7698	20-Feb-81	1600	300	30																																																																																								
7521	JAMES	SALESMAN	7698	22-Feb-81	1250	500	30																																																																																								
7566	RAM	MANAGER	1234	02-Apr-81	2975		20																																																																																								
7654	KIRAN	SALESMAN	7698	28-Sep-81	1250	1400	30																																																																																								
7698	KARAN	MANAGER	1234	01-May-81	2850		30																																																																																								
7782	ARUN	MANAGER	7839	09-Jun-81	2450		10																																																																																								
7788	PREM	ANALYST	7566	09-Dec-82	3000		20																																																																																								
1234	RAJ	PRESIDENT		17-Nov-81	5000		10																																																																																								
DEPTNO	DNAME	LOC																																																																																													
10	ACCOUNTING	DELHI																																																																																													
20	RESEARCH	BANGALORE																																																																																													
30	SALES	CHENNAI																																																																																													
40	OPERATIONS	BOMBAY																																																																																													
<div><div>i.</div><div>List the name of highest salary paid employee working under the manager ‘RAJ’.</div></div> <div><div>ii.</div><div>List the name and job of most recently hired employee of department 30.</div></div> <div><div>iii.</div><div>List the name of highest paid employee.</div></div> <div><div>iv.</div><div>List the Department number and their average salaries for department with the average salary less than the averages for all department</div></div>																																																																																															

<b>4a</b>	<p>Write ER diagram for the following requirements (capture all the relationship constraints in the diagram):</p> <p>Consider a Mail_order database in which employees take orders for product from customers. The requirements are:</p> <ul style="list-style-type: none"> <li>• Each Employee is identified by EMP_ID, EMP_Name &amp; Address (Street num, area name, city).</li> <li>• Each Customer is identified by CUST_ID, CUST_Name, Mobile Number (multiple numbers).</li> <li>• Each Product is identified by Product_ID, Product_name, Price and Quantity.</li> <li>• Each Employee can take order from more than one Customer.</li> <li>• Each Customer can place request for more than one Product.</li> <li>• Each Employee can deliver more than one Product.</li> </ul>	<b>10</b>
<b>OR</b>		
<b>4b</b>	<p>Design an ER diagram for the following requirements (capture all the constraints and relationships in the diagram)</p> <p>For each department the database contains a department number (unique), a budget value, and the department manager's employee number (unique). For each department the database also contains information about all employees working in the department, all projects assigned to the department, and all offices occupied by the department. The employee information consists of employee number (unique), the number of the project on which he or she is working, and his or her office number and phone number; the project information consists of project number (unique) and a budget value; and the office information consists of an office number (unique) and the area of the office in square feet. Also, for each employee the database contains the title of each job the employee has held, together with date and salary for distinct salary received in that job; and for each office it contains the numbers (unique) of all phones in that office.</p>	<b>10</b>

\*\*\*ALL THE BEST\*\*\*