

**GUJARAT TECHNOLOGICAL UNIVERSITY****Diploma Semester -III Remedial Examination May - 2011****Subject code: 330703****Subject Name: Data Base Management System****Date: 28 /05 /2011****Time: 02.30 pm – 05.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is Authentic

- Q.1** (a) Explain advantages of database system over file management system. **07**  
 (b) What are the functions and responsibilities of DBA? **07**

- Q.2** (a) Explain Three-level ANSI SPARC Database Architecture. **07**  
 (b) Explain E-R diagram with its symbol. **07**

**OR**

- (b) List different data models and explain one of them. **07**

- Q.3** (a) Explain Physical data independence and logical data independences. **07**  
 (b) Explain Primary key and Foreign key with example. **07**

**OR**

- Q.3** (a) Explain Internal mapping and external mapping. **07**  
 (b) Explain DDL and DML. **07**

- Q.4** Using Relational algebra explain following:  
 (a) Selection Operation **07**  
 (b) Union Operation **07**

**OR**

- Q. 4** (a) Projection Operation **07**  
 (b) Joining Operation **07**

- Q.5** The table EMP is shown as below:

| EMPNO | ENAME   | JOB      | MGR  | SAL  | DEPTNO |
|-------|---------|----------|------|------|--------|
| 7369  | SACHIN  | CLERK    | 7902 | 800  | 20     |
| 7499  | SAHEVAG | SALESMAN | 7698 | 1600 | 30     |
| 7521  | SUNIL   | SALESMAN | 7698 | 1250 | 30     |
| 7698  | KAPIL   | MANAGER  | 7902 | 3800 | 30     |
| 7902  | DRAVID  | ANALYST  | 7566 | 3000 | 10     |

Write the following query:

- (a) (i) Display the result in an ascending order by the attribute DEPTNO. **07**  
 (ii) List the job title and the salary of those employees whose manager has the number 7698 and who earn more than 1500.  
 (b) List all employees who are not working in department 30 and who earn more than all employees working in department 30. **07**

**OR**

- Q.5** (a) (i) How many tuples are stored in the relation EMP. **07**  
 (ii) Compute the difference between minimum and maximum salary  
 (b) Retrieve all employees who are working in department 10 and who earn at least as much as any employee working in department 30. **07**

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| પ્રશ્ન-૧ | અ       | ફાઇલ મેનેજમેન્ટ ની સરખામણી એ database system ના ફાયદા સમજાવો.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|--------|-----|-----|--------|------|--------|-------|------|-----|----|------|---------|----------|------|------|----|------|-------|----------|------|------|----|------|-------|---------|------|------|----|------|--------|---------|------|------|----|--|
|          | બ       | DBA નું કાર્ય અને જવાબદારી શું છે?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| પ્રશ્ન-૨ | અ       | Three-level ANSI SPARC Database Architecture સમજાવો.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          | બ       | E-R diagram બધા symbol સાથે સમજાવો.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          |         | અથવા                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          | બ       | જુદા-જુદા data models ની માહિતી આપી ગમે તે એક સમજાવો.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| પ્રશ્ન-૩ | અ       | સમજાવો. Physical data independence અને logical data independences.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          | બ       | સમજાવો. Primary key અને Foreign key. ઉદાહરણ આપો.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          |         | અથવા                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| પ્રશ્ન-૩ | અ       | સમજાવો. Internal mapping અને external mapping.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          | બ       | સમજાવો. DDL અને DML શું છે?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| પ્રશ્ન-૪ |         | Relational algebra નો ઉપયોગ કરી નીચે ના કાર્યો સમજાવો.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          | અ       | સીલેક્શન ઓપરેશન                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          | બ       | યુનિયન ઓપરેશન                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          |         | અથવા                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| પ્રશ્ન-૪ | અ       | પ્રોજેક્શન ઓપરેશન                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          | બ       | જોઈનીંગ ઓપરેશન                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| પ્રશ્ન-૫ |         | The table EMP is shown as below:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          |         | <table> <tr> <th>EMPNO</th><th>ENAME</th><th>JOB</th><th>MGR</th><th>SAL</th><th>DEPTNO</th></tr> <tr> <td>7369</td><td>SACHIN</td><td>CLERK</td><td>7902</td><td>800</td><td>20</td></tr> <tr> <td>7499</td><td>SAHEVAG</td><td>SALESMAN</td><td>7698</td><td>1600</td><td>30</td></tr> <tr> <td>7521</td><td>SUNIL</td><td>SALESMAN</td><td>7698</td><td>1250</td><td>30</td></tr> <tr> <td>7698</td><td>KAPIL</td><td>MANAGER</td><td>7902</td><td>3800</td><td>30</td></tr> <tr> <td>7902</td><td>DRAVID</td><td>ANALYST</td><td>7566</td><td>3000</td><td>10</td></tr> </table> | EMPNO | ENAME | JOB    | MGR | SAL | DEPTNO | 7369 | SACHIN | CLERK | 7902 | 800 | 20 | 7499 | SAHEVAG | SALESMAN | 7698 | 1600 | 30 | 7521 | SUNIL | SALESMAN | 7698 | 1250 | 30 | 7698 | KAPIL | MANAGER | 7902 | 3800 | 30 | 7902 | DRAVID | ANALYST | 7566 | 3000 | 10 |  |
| EMPNO    | ENAME   | JOB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | MGR   | SAL   | DEPTNO |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| 7369     | SACHIN  | CLERK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 7902  | 800   | 20     |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| 7499     | SAHEVAG | SALESMAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 7698  | 1600  | 30     |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| 7521     | SUNIL   | SALESMAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 7698  | 1250  | 30     |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| 7698     | KAPIL   | MANAGER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7902  | 3800  | 30     |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| 7902     | DRAVID  | ANALYST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 7566  | 3000  | 10     |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          |         | નીચેની ક્વેરી લખો:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          | અ       | (i) attribute DEPTNO દ્વારા ચઢતા ક્રમમાં પરિણામ દર્શાવો .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          |         | (ii) એવા કર્મચારીઓ કે જેમના મેનેજરનો નંબર ૭૬૯૮ છે અને જે ૧૫૦૦ કરતાં વધારે કમાય છે તેમનું જોબ ટાઈટલ અને પગાર નું લીસ્ટ બનાવો.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          | બ       | એવા કર્મચારીઓનું લીસ્ટ બનાવો કે જે ડીપાર્ટમેન્ટ ૩૦ માં કામ નથી કરતા અને ડીપાર્ટમેન્ટ ૩૦ માં કામ કરતા કર્મચારીઓ કરતા વધારે કમાય છે.                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          |         | અથવા                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
| પ્રશ્ન-૫ | અ       | (i) How many tuples are stored in the relation EMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          |         | (ii) Compute the difference between minimum and maximum salary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |
|          | બ       | Retrieve all employees who are working in department 10 and who earn at least as much as any employee working in department 30.                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 07    |       |        |     |     |        |      |        |       |      |     |    |      |         |          |      |      |    |      |       |          |      |      |    |      |       |         |      |      |    |      |        |         |      |      |    |  |

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