**National Institute of Technology Calicut**

**Department of Computer Science and Engineering**

**Midterm Test – II Monsoon 2014**

**CS3002 Database Management Systems**

**Time: 1 Hr Max. Marks: 20**

Answer all questions.

1. **[1 Mark**

Ans: Count(\*)\* is used to select all values including NULL.

1. **[1 Mark]**   
   a) SELECT distinct course\_id FROM section WHERE semester = ’Fall’ AND year= 2009 and course\_id not in (SELECT course\_id FROM section WHERE semester = ’Spring’ AND year= 2010);

Ans:a

1. **[5 Marks]**

**3.a** Increase all accounts with balances over $10,000 by 6%, all other accounts receive 5%.

**Write two update statements:**

**update *account* set *balance = balance* \* 1.06  
 where *balance* > 10000**

**update *account* set *balance = balance* \* 1.05  
 where *balance* £ 10000**

**The order is important.**

**[OR]**

**The same can be written using “case” like below.**

**update *account*  
 set *balance* = case   
 when *balance* <= 10000 then *balance* \*1.05  
 else *balance* \* 1.06  
 end**

**3.b** Delete the record of all accounts with balances below the average at the bank. Mention any specific problem that may encounter during your query execution. Also provide a solution for the same.

**delete from *account* where *balance* < (select avg (*balance* )from *account* )**

**Problem:**  As we delete tuples from deposit, the average balance changes

**Solution:** **1.** First, compute **avg** balance and find all tuples to delete. **2.** Next, delete all tuples found above (without recomputing **avg** or retesting the tuples)

**3.c** Find all customers who have at least two accounts at the Perryridge branch.

**select distinct *T.customer\_name***

**from *depositor* as *T***

**where not unique (**

**select *R.customer\_name***

**from *account, depositor* as *R***

**where *T.customer\_name = R.customer\_name* and**

***R.account\_number = account.account\_number* and**

***account.branch\_name =* 'Perryridge')**

**3.d** Find the names of all branches that have greater assets than all branches located in Brooklyn.

**select *branch\_name* from *branch* where *assets >* all  
 (select *assets* from *branch* where *branch\_city =* 'Brooklyn')**

**3.e** Find the names of all branches where the average account balance is more than $1,200.

**select** *branch\_name,* **avg** (*balance*)**from** *account* **group by** *branch\_name* **having avg**(*balance*) *>* 1200

1. **[2+2+1=5 Marks]**

**4.a**

πhotelName, count roomNo (hotelNo, hotelName𝔉count(roomNo) (Hotel ⋈ Room))

**4.b**

AvgPrice ≔ πhotelNo, average price(hotelNo𝔉average(price) (Hotel ⋈ Room))

ExpensiveRooms ≔ πhotelNo, roomNo(ςprice > average price(Room ⋈ AvgPrice))

RichGuests = πguestNo(Booking ⋈ ExpensiveRooms)

Result = 𝔉count(guestNo)RichGuests

**4.c**

RA: πroomNo, type, price(Room ⋈ ςhotelName = „Balke Inn‟(Hotel))

TRC: { *r*.roomNo, *r*.roomType, *r*.price | Room(*r*) ∧ ∃*h* (Hotel(*h*) ∧ *h*.hotelName = „Balke Inn‟ ∧ *h*.hotelNo = *r*.hotelNo) }

**4.d**

List the names of all hotels offering a room that costs more than Rs. 500.

1. **[2 Marks]** **Right outer join**

**A B C**

A1 b2 c2

Null b3 c3

**Full outer join**

**A B C**

a1 b1 Null

a1 b2 c2

Null b3 c3

1. **[2 Marks]**

∏name, SUM(length) σ MIN(year)<1930 γname, MIN(year), SUM(length) σ cert#=producerC#(MovieExec X Movie):

7. [**2 Marks]** What does the following SQL queries return as result? Explain in plain English.

**7.a** Ans: List the names of managers who have at least one dependent.

7.b Ans: For each project for which more than 4 employees work, retrieve the project number, the project name, and the number of employees who work on the project.

8. [1 Mark] Write down the general format of an SQL query.

Ans: SELECT <attribute and function list>

FROM <table list>

WHERE <condition>

GROUP BY <grouping attribute(s)>

HAVING <group condition>

ORDER BY <attribute list> ;

9. **[1 Mark]** Ans: A/B = S1,S4