TÖL303G Final Exam
TÖL303G Lokapróf
Book of Answers
Svarabók

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Part I – SQL, etc.
Hluti I – SQL o.fl.

Answer at least three questions in this part
Remember to answer a total of at least 10 questions
Svarið að minnsta kosti þremur spurningum í þessum hluta
Munið að svara a.m.k. 10 spurningum í heild

1

a.

```
select title,year from Movie order by year,title;
```

b.

```
Select name from MovieExec where notexists
    (Select * from Movie, StarsIn where
        cert=producerC and
        title=movieTitle and
        year=movieYear and
        starname like 'Harrison Ford');
```

c.

```
Select name from Studio left Join Movie On name = studioName
left Join StarsIn on year=movieYear and title=movieTitle
where starName = 'Jack Nicholson'
group by name having count(title) >= 2;
```

2

   a.

   b.

   c.

3

a.

```
Select name, isnull(count(distinct starName), 0) from MovieExec
left join Movie on cert = ProducerC
left join StarsIn on title = MovieTitle and
                     year = MovieYear

group by cert;
```

b.

```
Select name, address from MovieExec, Movie where
    cert = producerC
    group by name
    order by sum(length)
    desc limit 1;
```

c.

```
Select name, address from MovieStar, StarsIn, Movie where
    gender = 'F' and name = StarName and
    title = movieTitle and year = movieYear
    group by name
    order by sum(length) desc limit 1;
```

4

a.

```
Select starName from StarsIn where
    title like 'Star Trek%'
    group by starName
    having count (movieTitle) >= 3;
```
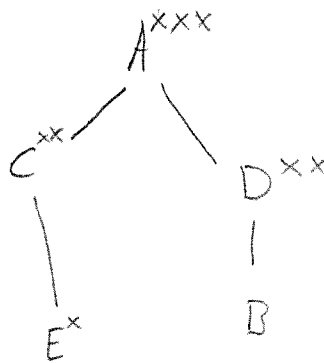
b.

```
Select starName from StarsIn, Movie where
    title = MovieTitle and Year = movie Year
    group by starName
    Order by count (distinct studionaume)
    desc limit 1;
```

5

a

6

Svör:

a, b, c, d, e

Part II – Relational Algebra, etc.
Hluti II – Venslaalgebra o.fl.

Answer at least one question in this part
Remember to answer a total of at least 10 questions
Svarið að minnsta kosti einni spurningu í þessum hluta
Munið að svara a.m.k. 10 spurningum í heild

7

a.

$$\pi_{A,B} \left(\sigma_{C=D} \left(R \times S \right) \right)$$

b.

$$\pi_{A,B,D} \left(R \bowtie S \right)$$

c.

$$\pi_{A,B,D} \left(R \bowtie S \right)$$

8

A:

B:

C:

Part III – Relational Design, etc.
Hluti III – Hönnun vensla o.fl.

Answer at least two questions in this part
Remember to answer at least 10 questions in total
Svarið að minnsta kosti tveimur spurningum í þessum hluta
Munið að svara a.m.k. 10 spurningum í heild

9

10

   a.

   b.

   c.

11

a) ABEF og ACDE

b) r₁(BCDE), r₂(ACDF), r₃(Ekki til einkunar

12

a.

ACEG
BCEG
CDEG
CEFG

b.

AC

13

R(ABCDEFGH)

D→E
CF→D
E→H
EG→F
BH→C
GH→B

a) A _ _ D E F _ H

b) A B C D E F G H ✓

c) A B C _ E _ _ H

d) _ _ _ D E F G H ✓

e) _ B C D E F G H ✓

f) A _ _ D E _ _ H

g) A _ C _ E _ _ H

h) A _ C D E F _ H

Svar:
b, d, e

Part IV – Miscellaneous
Hluti IV – Ýmislegt

Answer at least one question in this part
Remember to answer at least 10 questions in total
Svarið að minnsta kosti einni spurningu í þessum hluta
Munið að svara a.m.k. 10 spurningum í heild

14

```
Create table Stars (name varchar(32) Primary key,
                    addr Varchar(32));

Create table Studios (name varchar(32) Primary key,
                      addr varchar(32));

create table Movies ( title Varchar(32),
                      year int,
                      length int,
                      genre Varchar(10)
                      Primary key (title, year));

Create table Contracts (
        Salary int,
        StarName Varchar(32) References Stars(name),
        StudioName Varchar(32) References Studios (name),
        movieTitle varchar(32)
        movieYear int,
        Primary key (Starname, movieTitle, movieYear),
        foreign key (movieTitle, movieYear) References
                    Movies (title, year));
```

15

```
public class SqlExample {
    static final String url = "jdbc:sqlite:movies.db";
    public static void main(String[] args) throws Exception {
        java.sql.Connection conn = java.sql.DriverManager.getConnection(url);
        java.sql.Statement stmt = conn.createStatement();
        java.sql.ResultSet rs = stmt.executeQuery(

"Select name, ishull(sum(length),0) from Moviestar " +
" left join StarsIn on name = StarName   left join movie on title=movietitle and " +
" year=movieYear   group by name");

        while(rs.next()) {
            System.out.println("nafn: " + rs.getString(1) +
                               " lengd: " + rs.getInt(2));
        }
        rs.close();
        conn.close();
    }
}
```

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