

Jaypee University of Information Technology Waknaghat, Solan

T-2 Examination, October, 2019

Subject: Database Management System
Code: 18B11CI313/10B11CI312

Branch: CS/IT/BI
Max. Marks: 25

*****GOOD LUCK*****

- Q:1 [CO 2] a) Map the given E-R diagram into relational model with minimum relations that clearly specifying the foreign key and primary key of each relation. 5
- Q:2 [CO 1] a) Write SQL queries of the followings problems as per given figure: 5
- o Find all album produced by an artist using co-related query.
 - o Find all the track name of a given album_id.
 - o Suppose ten artists have same name, now find all records of artists who have larger artist_id of given artist_id=123.
 - o Find all Artists who do not release any album.
 - o Create a view on artist_id and album_id.
- Q:3 [CO 3] a) Write the following in relational algebra: 3
- o List the conditions on which two relations are union compatible and how to union of two relations done which are not union compatible.
 - o Write RA notation for the operation: theta, equi and natural joins.
 - o Write the sequence of operations that express the division operation.
- b) Answer the followings: 3
- o List the detail of artist who released an album_id=99 in TRC and DRC.
 - o What is safe expression in TRC & write an expression which is not safe.
 - o What we can get from the following query and also states the free and bound variables.
- $\{q, s, v \mid (\exists z) (\exists l) (\exists m) (\text{EMPLOYEE}(qrstuvwxyz) \text{ AND DEPARTMENT}(lmno) \text{ AND } l = \text{'Research'} \text{ AND } m = z)\}$**
- Q:4 [CO 4] a) What are the guidelines to measure the quality of a relation schema design? 1
- b) R(ABCDEFGH) c) R(ABCDEF) d) e) 2
- CH→G; A→BC A→BCDEF; B→F Find canonical A→BC; CD→E; 2
- B→CFH; E→A; BC→ADEF; D→E form: B→D; E→A 2
- F→EG Covert R into BCNF. B→A; D→A; Is lossless? Prove it. 2
- Covert R into 3NF. AB→D 2

