PDPM IIITDM JABALPUR
CS203 DATABASE DESIGN AND MANAGEMENT
QUIZ 1 February 12, 2014

MaxMarks 20 **Time 1 hour**

Roll No: _____ **Name:** _____

1. Consider the instance of the Students relation shown in the Figure 1 and answer the following questions.

Roll. No.	Name	Login	Age	CPI
2011001	Amar	amar@iiitdmj.ac.in	20	5.5
2011002	Deepa	deepa@iiitdmj.ac.in	20	8.5
2012001	Aakash	aakash@iiitdmj.ac.in	19	7.0
2013001	Tia	tia@iiitdmj.ac.in	18	8.7
2013005	Deepa	Deepa2013@iiitdmj.ac.in	18	9.0

Figure 1: An instance of the Students relation at IIITDM Jabalpur
where attribute have their common meaning

(a). Give an example of an attribute (or set of attributes) that you can deduce is not a candidate key, based on this instance being legal. [2]

(b). Is it possible to decide a candidate key for any relation, based on a particular instance being legal? [2]

(c). Based on your understanding of this instance, write all superkeys for this relation. [2]

2. T-series has decided to store information about musicians who perform on its albums (as well as other company data) in a database. The company has wisely chosen to hire you as a database designer (at your usual consulting fee of Rs. 5,000/day).

Each musician that records at T-series has an SSN, a name, an address, and a phone number. Poorly paid musicians often share the same address, and no address has more than one phone.

Each instrument used in songs recorded at T-series has a unique identification number, a name (e.g., guitar, synthesizer, flute) and a musical key (e.g., C, B-flat, E-flat).

Each album recorded on the T-series has a label with unique identification number, a title, a copyright date, a format, and an album identifier.

Each song recorded at T-series has a title and an author.

Each musician may play several instruments, and a given instrument may be played by several musicians.

Each album has a number of songs on it, but no song may appear on more than one album.

Each song is performed by one or more musicians, and a musician may perform a number of songs.
Each album has exactly one musician who acts as its producer. A musician may produce several albums, of course.

Design a conceptual schema for T-series and draw an ER diagram for your schema. The preceding information describes the situation that the T-series database must model. Be sure to indicate all key and cardinality constraints. Identify any constraints you are unable to capture with the given information. State any assumptions you made to indicate such constraints. Get a relational schema for T-series music company from this ER-Model. [8 + 6]