# Homework 1 Entity relationship modelling Answers

# 1. Define the following terms:

#  (i) Entity [1]

#  A category of person or thing about which data is held

#  (ii) Attribute [1]

 A property of an entity

#  (iii) Primary key [2]

 An attribute which uniquely identifies a record

#  (iv) Foreign key [2]

 An attribute which is the primary key in one table, and creates a join between two tables

3. A cinema club shows up to three screenings of films on a given day. They need a database to keep track of which films have been shown on which dates. It has been suggested that they use one table (relation) about the films they show, which will hold the following data:

 FilmID, Title, Duration, Male Lead, Female Lead, Date shown, Time shown, Tickets sold.

 (a) Give a reason why this is not a satisfactory solution. [1]

 There may be more than one male lead and female lead in a film

 (b) Show how the data could be reorganised into **four** relations, using the notation

 Entity name (attribute1, attribute2, attribute3 …)

 An underscore indicates the primary key. The entities that have been identified are Film,

 Actor, ActorInFilm and Showing. [7]

 Film(filmID, title, duration)

 Showing(showID, date, time, ticketsSold, *filmID*)

 Actor(actorID, name, gender)

 ActorInFilm(*filmID, actorID*)

 *(1 mark for all fields correct, one for identifying primary key in each relation)*

(c) Identify **one** foreign key and **one** composite key in any of the relations. [2]

 Foreign keys – see Italics in definitions. Composite key – filmID, actorID

 (d) Complete the Entity-Relationship diagram below to show the degree of the relationships between the entities (one-to-many, etc.) [3]

Film

ActorInFilm

Showing

Actor

 [Total 20 Marks]