Topic 1

Poll 1

c) both (a) and (b)

Poll 2

a) True

Poll 3

b) False

The query may be slow due to a suboptimal logical or physical design of the database. Typically, the issue lies within the design rather than the Database Management System (DBMS).

Sometimes performance tuning involves upgrading to a more efficient DBMS, but this is not always the case. Therefore, the answer is false.

Topic 2

Poll 4

a) One-to-one relationship

Poll 5

b) True

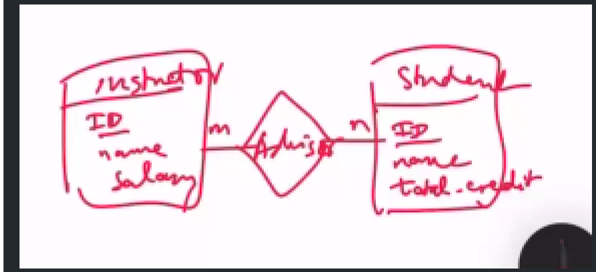
The primary key can indeed consist of more attributes than the super key. This occurs because a super key for an entity E might simply be (ID), assuming that (ID) is sufficient to uniquely identify E.

By combining ID with additional attributes, we can create new keys such as $(ID, name)$ or (ID, GPA) for a *Student* entity. Since these keys include ID, they can still uniquely identify the student.

The *primary key* is simply the one we select for our implementation. Thus, it's possible to designate $(ID, name)$ as our primary identifier, even though it contains more attributes than the super key (ID).

Poll 6

The diagram that requires modification:



b) Adding a multi-valued attribute to Instructor

A multi-valued attribute is one that can hold multiple values. For example, it would be represented as `{phone_numbers}` within the rectangle for the Instructor entity set. This allows us to store multiple phone numbers for each Instructor entity.

Poll 7

a) True

Poll 8

b) False

An aggregation is employed when we want to establish a relationship with a relationship set.

Topic 3

Poll 9

Skipped !?

Poll 10

EMPLOYEE is the relation schema `employee(name, office_number, age)`.

c) (name, office_hours) is the candidate key.

The candidate key is the smallest key possible to uniquely identify an entity.
Name cannot be a key on its own, office_number cannot be a key on its own.

(There is a mistake in the original question, office_hours should be listed as part of the relation schema): `employee(name, office_number, age, office_hours)`

Poll 11

Poll 12

Poll 13

Poll 14

Poll 15