THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1.   Answer the following short questions: (6x5=30)

a) Differentiate Candidate Key and Primary Key with example.

b) Describe limitations of file processing systems.

c) Describe Data Dictionary.

d) Discuss database security.

e) Define transitive dependency with example.

f) Discuss SELECT, FROM, and WHERE clause of SQL.

Answer the following questions.   (3x10=30)

Question 2.   Define Data Model and discuss different types of data models.

Question 3.   Normalize the following "Property_Rent" Relation up to 3rd Normal form but step by step, show each intermediate resultant table with its data.

Property _ Rent

Client-No	Client-Name	Prop-No	Prop-Address	R-Star	R-End	Rent	Owner-No	Owner-Name
CR76	Khalid Khan	PG4	6 lawrence St, LHR	1-Jul-00	31-Aug-01	350	CO40	Bilal Ahmed
		PG16	5 Clifton, KHI	1-Sep-02	9-Sep-02	450	CO93	Kamran Shaw
CR56	Usman Kaleem	PG4	6 lawrence St, LHR	1-Sep-99	10-Jun-00	350	CO40	Bilal Ahmed
		PG36	8 Clifton, KHI	10-Oct-00	1-Dec-01	370	CO93	Kamran Shaw
		PG16	5 Clifton, KHI	1-Nov-02	1-Aug-03	450	CO93	Kamran Shaw

Question 4.   Identify entities, attributes and relationships, Also draw an Entity Relationship Diagram (ERD) for the following Hospital. Use the following requirements and take your own assumptions (if needed).

In an educational institute, there are several departments and student belongs to one of them. Each department has a unique department number, a name, a location, phone number and is head by a professor.

Professors have a unique employee id, name, phone number. We like to keep track of following details regarding students: name, unique roll number, sex, phone no, DOB, age and one or more email addresses.

Students have a local address consisting of the hostel name and the room number. They also have home address consisting of House number, street, city and PIN, it is assumed that all students reside in the hostels.

A course taught in a semester of the year is called a section. There can be several sections of the same course in a semester; there are identified by the section number. Each section is taught by a different professor and has its own timings and room to meet.

Students enroll for several sections in a semester. Each course has a name, number of credits and the department that offers it. A course may have other courses as pre requisites. Professors also undertake research projects. These are sponsored by funding agencies and have a specific start date, end date and amount of money given. More than one professor can be enrolled in a project also a professor may be simultaneously working on several projects. A project has a unique project ID.