Q.1) choose the correct answer:

1- In the relational models, cardinality is termed as:
   (A) Number of tuples.  (B) Number of attributes.  
   (C) Number of tables.  (D) Number of constraints.

2- The view of total database content is
   (A) Conceptual view.  (B) Internal view.  
   (C) External view.  (D) Physical View.

3- Cartesian product in relational algebra is
   (A) A Unary operator.  (B) A Binary operator.  
   (C) A Ternary operator.  (D) Not defined.

4- DML is provided for
   (A) Description of logical structure of database.  
   (B) Addition of new structures in the database system.  
   (C) Manipulation & processing of database.  (D) Definition of physical structure of database system.

5- Architecture of the database can be viewed as
   (A) two levels.  (B) four levels.  
   (C) three levels.  (D) one level.

6- An entity set that does not have sufficient attributes to form a primary key is a
   (A) Strong entity set.  (B) Weak entity set.  
   (C) Simple entity set.  (D) Primary entity set.

7- In a Hierarchical model records are organized as
   (A) Graph.  (B) List.  
   (C) Links.  (D) Tree.

8- A logical schema
   (A) Is the entire database.  
   (B) Is a standard way of organizing information into accessible parts.  
   (C) Describes how data is actually stored on disk.  (D) Both (A) and (C).

9- The relational model feature is that there
   (A) Is no need for primary key data?  
   (B) Is much more data independence than some other database models.  
   (C) Are explicit relationships among records?  
   (D) Are tables with many dimensions?
key field in each record is
   (A) Hash.    (B) Direct.
   (C) Sequential. (D) all of the above.

Q.2)
   A) Define the five basic operators of relational algebra with an example of each?
   B) Given the following relations:
       Vehicle (Reg_no, make, color)
       Person (eno, name, address)
       Owner (eno, reg_no)

Write expressions in the relational algebra to answer the following queries:
1- List the reg_no of vehicles owned by Mohammed.
2- List the names of persons who own BMW cars.
3- List all the red colour vehicle.

Q.3) Information about films contains information about movies, stars and studios. Movies have a title, year of production, length and the film type. Stars have a name and address. Studios have a owner and a banner. Movies are shot in studios which own them. A movie is shot in only one studio. Stars are connected to one or more studios but can act in any film which may or may not be owned by the studio. Draw an E-R diagram. Clearly indicate attributes, keys, the cardinality ratios and participation constraints.

Q.4) Choose one of the following:
   A) Explain the database manager showing its tasks?
   B) List the database design process?

Q.5) Choose one of the following:
   A) Explain the hash file organization showing its advantages?
   B) What are the security objectives in database? Explain in details.

Good luck