

- N.B. : (1) Question No. 1 is compulsory.  
 (2) Attempt any four out of remaining.  
 (3) Figures to the right indicates full marks.  
 (4) Figure should be neat and clean.

1. Database is to be designed for a college to monitor students progress throughout their course of study. The student are reading for a degree (such as B.A., B.Com., M.Sc. etc) within the Framework of the modular system. The college provides a number of Modules, each being characterized by its code, title, credit value, module leader who shares teaching duties with one or more lecturers. A lecturer may teach (and be a module leader for) more than one module. Students are free to choose any module they wish but the following rules must be observed: Some modules require prerequisites module and some degree programs have compulsory modules. The database also contains some information about students including their number, names address Degrees they read for and their past performance (i.e. module taken and examination results) 20
  - (a) Draw an EER diagram.
  - (b) List the relations for problem with primary key and foreign key.
2. (a) Give details notes on : 12
  - (i) Object Identity
  - (ii) Object Structure
  - (iii) Type Constructors.
- (b) Give advantage of persistent objects over transient object and how C++ helps for Implementing persistent objects. 8
3. (a) Create various objects and use that objects for creation of tables by using SQL for above problem in Q. 1. 12
- (b) Explain the concept of nested relation in ORDBMS. 8
4. (a) Explain concurrency control and Recovery in Distributed database. 10
- (b) What are the different Architecture Model for parallel database. 10
5. (a) Explain in brief Deductive database system. 10
- (b) What are XML applications ? Explain querying and transformation of XML Data. 10
6. (a) What is Data mining ? What are the goals of Data mining and Knowledge Discovery. 10
- (b) What is Data warehousing and also explain what snowflake schema and how they are constructed. 10
7. (a) Give the general Architecture of mobile computing using wireless and client Network relationship. 10
- (b) Write details notes on Geographical Information system ( GIS). 10