Pokhara University

|  |  |  |
| --- | --- | --- |
| Level: Bachelor | Semester: Spring | Year : 2012 |
| Programme: BE | | Full Marks: 100 |
| Course: Database Management System | | Pass Marks: 45 |
| Time : 3hrs. |

|  |
| --- |
| *Candidates are required to give their answers in their own words as far as practicable.* |
| *The figures in the margin indicate full marks.* |
| Attempt all the questions. |

|  |  |  |
| --- | --- | --- |
|  | 1. “Database approach is more appropriate than file-processing system for application development”. Give reasons in the support of this statement. 2. Define data model. Explain the different data model. | 8  7 |
|  | 1. Consider the following relations for an order-processing database application in a company.   CUSTOMER (Cust#,Cname, City)  ORDER(Order#, Odate, Cust#, ord\_Amt)  ORDER\_ITEM(Order#, Item#, Qty)  ITEM(Item#, Unit\_Price)  SHIPMENT(Order#, Wavehouse#, Ship\_date)  WAREHOUSE(Warchouse#, City)  Answer the following queries in relational Algebra   1. List the order# and ship date for all orders shipped from wavehouse number “W2” 2. List the warehouse information for which the customer named ‘Jose Copez’ was supplied his orders 3. List the orders that werenot shipped within 30 days of ordering 4. List the order # for orders that were shipped form all werehouses that the company has in network. 5. What is Integrity constraint? How does data integrity Constraint differ with Data Security. | 8  7 |
|  | 1. Consider the following relations:   Employee (emplD, FirstName, LastName, address, DOB, sex, position, deptNo)  Department (dtptNo, deptName, mgr, empID)  Project (projNo, projName, deptNo)  Work on (empID, projNo, hours worked)  Write the SQL statements for the following:   1. List the name and addresses of all employees who work for the IT department. 2. List the total hours worked by each employee, arranged in order of department number and within department, alphabetically by employee surname. 3. List the total number of employees in each department for those departments with more than 10 employees. 4. List the project number, project name and the number of employees who work on that project. 5. What is integrity constraints? Explain with example about BCNF and 5th normal form. | 8  7 |
|  | 1. Diagrammatically illustrate and discuss the steps involved in processing a query. 2. Explain the major issues related to Database security. | 8  7 |
|  | 1. What is data dictionary storage? Explain Heap file organization. 2. What is file organization? Explain heap file organization with its advantages and disadvantages over index file organization. | 8  7 |
|  | 1. What do you understand by concurrency control? Discuss two phase locking protocol. How does it guarantee serialization. 2. What is log-based re-covery? How is it different from shadow paging. | 8  7 |
|  | Write short notes on: **(Any two)**   1. B-tree index file. 2. Distributed DBMS. 3. Natural join. | 2×5 |