Pokhara University

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| Level: Bachelor | Semester: Fall | Year : 2014 |
| Programme: BE | | Full Marks: 100 |
| Course: Database Management System | | Pass Marks: 45 |
| Time : 3hrs. |

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| *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. |

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|  | 1. List out the major objectives of DBMS. Differentiate between Data abstraction & Data independence. 2. Draw an E-R diagram for the database of a hospital with a set of patients and a set of medical doctors. With each patient a log of the various tests conducted is also associated. Make your own assumptions if necessary. | 7  8 |
|  | 1. What is relational algebra? Compare and contrast relational algebra with the relational calculus. 2. Consider following relations:   employee (emp\_name, street, city)  works (emp\_name, company, salary)  company (comp\_name, city)  manages (emp\_name, manager\_name)  Write SQL statements for:   1. Find employee names that lives in the city same as the company city. 2. List all employee details who earn more then 25000. 3. Update address of an employee 'Sriyash' to 'Pokhara'. 4. Create a view for which employee earns Rs. 20,000 or more. 5. Delete all employees from the table employee. | 7  8 |
|  | 1. Explain BCNF and 3NF with suitable example. 2. Differentiate between authentication & authorization. How encryption & decryption occurs in Private key & Public key cryptography?. | 7  8 |
|  | 1. How the query optimization process is carried out? Explain about cost estimation of query. 2. When is it preferable to use a dense index rather than a sparse index? Explain with a suitable example. | 8  7 |
|  | 1. Discuss in detail about the shadow paging technique of crash recovery with its drawbacks. 2. Define dead lock and serializability. Illustrate dead lock and conflict serializability with suitable example. | 7  8 |
|  | 1. Under which situations will be beneficial to have replication or fragmentation of data? Explain with suitable example. 2. Define database integrity. Classify the integrity constraints of database. | 8  7 |
|  | Write short notes on: **(Any two)**   1. Assertions and Trigger 2. 2PL 3. Stored procedure. | 2×5 |