Punjab Technical University
Master of Computer Application Examination

MCA 3rd Semester RDBMS 2009

Time : 03 Hours Maximum Marks : 75
Instruction to Candidates:
1) Selection - A is Compulsory.
2) Attempt any Nine questions from Section – B

Section - A (15x2=30)

a) What is database? Give two examples.
b) Describe few disadvantages of databases.
c) Define data independence. Describe its types.
d) What is partial key?
e) Differentiate referential integrity constraints and entity integrity constraints.
f) Describe the recursive closure operation in relation algebra.
g) Describe the difference between relational algebra and relational calculus.
h) What is join dependency?
i) What is the need of normalization?
j) Describe DML statements in SQL.
k) What is the difference between UNDO and REDO operations?
l) What is database security?
m) Describe in place updating and dirty read in concurrency problem.
n) What is the difference between horizontal and vertical fragmentation?
o) Describe WAL(write ahead logging) protocol.

Section – B (9 x 5= 45)

Q2) What is database administrator? Explain its responsibilities.
Q3) Explain three level architecture of database.
Q4) What is relational model? How it differ from hierarchical model? Explain.
Q5) Explain the naming conventions in design of E-R model.
Q6) What is relational algebra? Explain different set relational algebra operations.
Q7) Explain different constraints in SQL.
Q8) What is normalization? Explain 4th and 5th normal forms.
Q9) What are inference rules? Derive 4th, 5th and 6th rules using Armstrong rules.
Q10) What is database recovery? Explain advantages and disadvantages of shadow paging over other recovery techniques.
Q11) What is the need of concurrency control? Explain different concurrency control techniques.
Q12) Explain the structure of distributed databases.
Q13) What is database security? Explain different security techniques.