Registration No : | | | | | | | | | | |

Total Number of Pages : 02 **B.Tech.**
PCS4G001

4th Semester Regular / Back Examination 2017-18
DATABASE SYSTEM
BRANCH : CSE
Time : 3 Hours
Max Marks : 100
Q.CODE : C1148

Answer Part-A which is compulsory and any four from Part-B.
The figures in the right hand margin indicate marks.
Answer all parts of a question at a place.

Part – A (Answer all the questions)

Q1 **Answer the following questions: *multiple type or dash fill up type:*** **(2 x 10)**

a) A view of database that appears to an application program is known as:
a. Schema b. Subschema c. virtual table d. none of the above

b) An abstraction concept for building composite object from their component object is called:
a. Specialization b. Normalization c. Generalization d. Aggregation

c) The number of entities to which another entity can be associated via a relationship set is expressed as:
a. Entity b. Cardinality c. Schema d. Attributes

d) In ER model the details of entities are hidden from the user, is called:
a. Generalization b. Specialization c. Abstraction d. none of these

e) The file organization that provides very fast access to any arbitrary record of a file is:
a. Ordered file b. Unordered file c. Hashed file d. B-tree

f) 4NF is designed to cope with:
a. Transitive dependency b. Join dependency
c. Multi valued dependency d. None of these

g) Every Boyce-Codd normal form is in
a. 1NF b. 2NF c. 3NF d. All of the above

h) Rollback of transactions is normally used to:
a. recover from transaction failure b. update the transaction
c. retrieve old records d. repeat a transaction

i) A super key is a set of one or more attributes that, allow us
a. to identify uniquely an entity in the entity set
b. to make the key most powerful for faster retrieval
c. to increase effectiveness of database access
d. none of the above

j) Prevention of access to the database by unauthorized users is referred:
a. Integrity b. Productivity c. Security d. Reliability

Q2 **Answer the following questions: *Short answer type:*** **(2 x 10)**

a) What is data independence?
b) What is transparent DBMS?
c) What is time stamping?
d) What is deadlock? How can it be avoided? How can it be resolved once it occurs?
e) Enlist the advantages of normalizing database.
f) What is meant by query optimization?
g) What is transitive Dependency?
h) What is a transaction? What are ACID properties?

i) What is 5NF or PJNF (Project Normal Form)?
j) What is RAID Technology?

Part – B (Answer any four questions)

Q3 **a)** Explain the advantages of data base management system over file management system. **(10)**

b) Define various data base users. Explain. **(5)**

Q4 **a)** A university registrar's office maintains data about the following entities: **(10)**
Courses (number, title, credits, syllabus, and prerequisites);
Course offerings (course_no, year, semester, section_no, instructor(s), timings, classroom);
Student (student_id, name, program);
Instructor (identification_no, name, dept, title);
Further, the enrollment of students in each course they are enrolled for must be appropriately modeled.
Construct an E-R diagram for the registrar's office. Construct appropriate tables for the above E-R diagram.

b) Explain QBE with an example? **(5)**

Q5 **a)** Specify the different types of file accessing method. **(10)**

b) Write short note on hashing technique. **(5)**

Q6 **a)** Consider the following relation R (A,B,C,D,E) and functional dependencies F= { A->BC, C->A,D->E, F->A, E->D } & decomposed R into R1(A, C, D), R2(B, C, D) and R3(E,F,D). Is it lossless or not? **(10)**

b) Differentiate between relational algebra and relational calculus. **(5)**

Q7 **a)** Explain the types of data ware house and the steps needed to build a data ware house. **(10)**

b) Differentiate between OLAP and OLTP. **(5)**

Q8 **a)** What is lock? Explain types of locks. Why dead lock arises? **(10)**

b) Consider two transactions : T1 & T2 **(5)**

Transaction T1:=	T2:=
read-item(A)	read-item(A)
A=A-50;	temp=A * 0.1;
Write-item(A)	A=A-temp;
Read-item(B)	write-item(A)
B=B+50;	read-item(B)
Write-item(B)	B=B+temp;
	Write-item(B)

Find out which no serial schedule is a serializable schedule?

Q9 **a)** Explain the different types of data base recovery techniques. **(10)**

b) What is transaction ? Define the properties & life cycle of a transaction? **(5)**