GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

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

Total Number of Pages : 2 **B.TECH**

4th Semester Regular Examination-April-May 2019

BITPC4050 Database Management System

(Regulations 2017) INFORMATION TECHNOLOGY

Time : 3 Hours Maximum : 100 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) 10 x 2=20 Mark

Q.1. Answer *All* Questions.

a Conceptual design [CO 1] [PO 1]
(A) is a documentation technique.
(B) needs data volume and processing frequencies to determine the size of the database.
(C) involves modeling independent of the DBMS.
(D) is designing the relational model

b The view of total database content is [CO 1][PO 1]
(A) Conceptual view. (B) Internal view.
(C) External view. (D) Physical view

c Cartesian product in relational algebra is [CO 1][PO 2]
(A) a Unary operator. (B) a Binary operator.
(C) a Ternary operator. (D) not defined

d The attribute AGE is calculated from DATE_OF_BIRTH. The attribute AGE is [CO 2][PO 2]
a) Single valued b) Multi valued
c) Composite d) Derived

e Which product is returned in a join query have no join condition: [CO 2][PO 1]
a) Equijoins b) Cartesian
c) Both Equijoins and Cartesian d) None of the mentioned

f Which-one of the following statements about normal forms is FALSE? [CO 2] [PO 1]
a) BCNF is stricter than 3 NF
b) Lossless, dependency -preserving decomposition into 3 NF is always possible
c) Loss less, dependency – preserving decomposition into BCNF is always possible
d) Any relation with two attributes is BCNF

g Where performance and reliability are both important, RAID level ____ is used. [CO 3][PO 1]
a) 0 b) 1 c) 2 d) 0+1

h An _____ consists of a search-key value and pointers to one or more records with that value as their search-key value. [CO 3][PO 1]
a) Index entry b) Index hash
c) Index cluster d) Index map

i Which of the following is an atomic sequence of database actions? [CO 4] [PO 1]
a) Transaction b) Concurrency
c) Relations d) All of the mentioned

j Which one of the following is a failure to a system [CO 4] [PO 1]
a) Boot crash b) Read failure
c) Transaction failure d) All of the mentioned

PART – B: (Short Answer Questions) 10X 2=20 Marks

Q.2. Answer *ALL* questions

a	Describe the characteristics of a database system?	[CO 1] [PO 1]
b	Differentiate between schema and instance?	[CO 1] [PO 1]
c	List the disadvantages of file system?	[CO 1] [PO 1]
d	Explain the differences among Entity, Entity Type & Entity Set?	[CO 2] [PO 2]
e	Describe lossless join decomposition?	[CO 2] [PO 1]
f	Does 3NF allow redundancy? Justify your answer?	[CO 2] [PO 2]
g	What are the disadvantages of static hashing?	[CO 3] [PO 1]
h	Write a short note on magnetic tapes?	[CO 3] [PO 1]
i	Explain Grant and Revoke commands with syntax?	[CO 4] [PO 1]
j	What is Deadlock condition in DBMS?	[CO 4] [PO 1]

PART – C: (Long Answer Questions) 4X15=60 Marks

Answer *ALL* questions

Q.3

a	Compare the database system with conventional file system?	6 Marks	[CO 1] [PO 1]
b	What is Data modeling? Explain relational model.	9 Marks	[CO 1][PO 1]
	OR		
c	Describe in detail about two-tier and three-tier client-server architectures.	8 Marks	[CO 1] [PO 2]
d	Discuss the activities of different database users.	7 Marks	[CO 1] [PO 1]

Q.4

a	State 1NF, 2NF & 3NF and explain with examples.	9 Marks	[CO 2] [PO 2]
b	Show how to preserve Functional Dependencies during decomposition.	6 Marks	[CO 2] [PO 2]
	OR		
c	Discuss in detail about the concepts of E-R model with suitable examples.	6 Marks	[CO 2] [PO 1]
d	Consider the following database schema to write queries in SQL Sailor(sid, sname, age, rating) Boats(bid, bname, bcolor) Reserves(sid, bid, day) i) Find the names of sailors who have reserved a red boat, and list in the order of age ii) Find the names of the sailors who have reserved at least one boat iii) Find the names of sailors who have reserved boat 103	9 Marks	[CO 2] [PO 4]

Q.5

a	Mention various types of records. Describe how they are organized inside a file?	8 Marks	[CO 3] [PO 1]
b	Describe different methods of defining indexes on multiple keys.	7 Marks	[CO 3] [PO 1]
	OR		
c	By considering relevant example, show insertion and deletion operations on a B+ tree.	8 Marks	[CO 3] [PO 2]
d	What is RAID? Explain different levels of RAID?	7 Marks	[CO 3] [PO 1]

Q.6

a	Define transaction and explain desirable properties of transactions.	9 Marks	[CO 4] [PO 1]
b	Differentiate distributed database and parallel database.	6 Marks	[CO 4] [PO 2]
	OR		
c	Why the concurrency control is needed? Explain it.	7 Marks	[CO 4] [PO 2]
d	Explain the database recovery along with its techniques?	8 Marks	[CO 4][PO 1]

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