MANAV RACHNA
Vidyapatankha

MANAV RACHNA UNIVERSITY
FORMERLY - MANAV RACHNA COLLEGE OF ENGINEERING
NAAC ACCREDITED 'A' GRADE INSTITUTION
Declared as State Private University under section 2f of the UGC act, 1956

DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T1 Examination,AUG-2018"

Semester:3rd
Subject:Database Management Systems
Branch: CSE
Course Type: Core
Time: 90 Minutes
Program: B.Tech

Date of Exam:29/08/18
Subject Code:CSH205-T
Session: II
Course Nature: Hard
Max.Marks:30
Signature: HOD/Associate HOD:

Note: Part A: All questions are compulsory. Each Question carries 2 marks. Part B: Attempt any two questions. Each Question carries 10 marks.

PART-A

Q1. (a) What are the main characteristics of database approach?

(b) When is it preferable to use a dense index rather than a sparse index? Explain your answer.

(c) Write any 2 DDL and DML commands with syntax.

(d) A data file contains 20,000 records. The record length is 150 bytes of which the key occupies 15 bytes, the block size is 512 bytes. Calculate the size of the primary index with block pointer of 2 bytes.

(e) Differentiate between data independence and abstraction.

PART-B

Q2. (a) The following values are to be stored in a hash table 25,42,96,101,102,162,197. Describe how the values are hashed by using division method of hashing with a table size of 7. Use chaining as the method of collision resolution. (4)

(b) Show the extendible hash structure for the file with the following key search values if the hash function is h(x) = x mod 7 and buckets can hold three records. (2,3,5,7,11,17,19,23,29,31) (6)

Q3. (a) Describe the three schema architecture. Why do we need mappings between schema levels? (3+2)

(b) How do you define a data model? Compare Hierarichal and Network Model stating examples for each. (1+4)

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Q4. (a) A file has r = 20,000 STUDENT records of fixed length. Block size B = 512 bytes, Each record has the following fields: Name (30 bytes), SSN(9 bytes), Address (40 bytes), Phone(10 bytes), Birth_Date(8 bytes), Sex(1 byte) Major_Dept_Code(4 bytes), Minor_Dept_Code (4 bytes), Class_Code(4 bytes integer)

(i). Calculate the record size R in bytes. (1)

(ii). Calculate the blocking factor bfr. (1)

(iii).Calculate and compare number of file blocks required for unspanned organization and spanned organization. (2)

(iv). Assume that the file is ordered by SSN;by doing a binary search, calculate the time it takes to search for a record given its SSN value. (1)

(b) (i). Define Data and DBMS. (2)

(ii). Differentiate between primary and secondary index with their applications. (3)

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