

## WEST BENGAL STATE UNIVERSITY

B.A./B.Sc. Honours 3rd Semester Examination, 2021-22

## **CMAACOR05T-COMPUTER APPLICATION (CC5)**

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks. Candidates should answer in their own words and adhere to the word limit as practicable. All symbols are of usual significance.

## Answer Question No. 1 and any *four* questions from the rest

1.		Answer any <i>four</i> questions from the following:	$2 \times 4 = 8$
	(a)	What is Candidate key?	
	(b)	What symbol we use to denote the "Select" and "Project" operation in Relational Algebra?	
	(c)	What are the unary operations in Relation Algebra?	
	(d)	What is data Abstraction in DBMS?	
	(e)	What do you mean by Functional dependency?	
	(f)	What is a lock in DBMS?	
2.		Explain the <b>ACID</b> properties in DBMS. Explain different types of locks.	4+4
3.		How many Database Languages are there? Briefly explain each type. What are the disadvantages of file processing systems?	4+4
4.	(a)	What are the role of DBA?	3
	(b)	What do you mean by Concurrency Control? What are the problems of concurrency control?	2+3
5.		Write SQL command for the following:	8
		Create a table <b>Employee</b> ( <u><i>EMP ID</i></u> , <i>EMP_NAME</i> , <i>E_Phone</i> , <i>E_address</i> ) and insert one value into the table. Show all the inserted value and finally drop the table.	
6.		Consider a university database for the scheduling of classrooms for final exams. This database could be modeled as the single entity set <i>exam</i> , with attributes <i>course-name, section-number, room-number</i> and <i>time</i> . Alternatively, one or more additional entity sets could be defined, along with relationship sets to	8

(a) *course* with attributes *name*, *department* and *c-number* 

replace some of the attributes of the exam entity set, as

## CBCS/B.A./B.Sc./Hons./3rd Sem./CMAACOR05T/2021-22

- (b) *section* with attributes *s*-*number* and *enrolment* and dependent as a weak entity set on *course*
- (c) room with attributes *r*-number, capacity and building

Show an E-R diagram illustrating the use of all three additional entity sets listed.

7. Consider the following two schemas:

 $2 \times 4 = 8$ 

EMP(EMP#, ENAME, JOB, HIREDATE, MANAGER#, SALARY, COMM, DEPT#) DEPT(DEPT#, DNAME, LOCATION)

Perform the following queries on the tables (Write appropriate SQL statement):

- (a) List the name, salary and PF amounts of all employees (PF is calculated as 10% of the salary)
- (b) List the number of employees and average salary in DEPT# 5
- (c) List the department number and total salary payable in each department.
- (d) List the name of the employee whose name start or ends with S.
  - **N.B.**: Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.

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