

School of Computer Science Engineering and Information Systems

Fall Semester 2023-2024

Continuous Assessment Test – I

Programme Name & Branch: B.Tech IT

Course Name & code: Database Systems- BITE302L

Class Number (s): VL2023240504240, VL2023240503940, VL2023240503772, VL2023240503812

Faculty Name (s): Dr. SENTHILKUMAR N C, Dr. KARTHIKEYAN J, Dr. SENTHILKUMAR N, Dr. BIMAL KUMAR RAY

Exam Duration: 90 Min.

Maximum Marks: 50

General instruction(s): Answer all the questions

Q.No.	Question	Max Marks
1.	a) Differentiate between File System and Database Management System. (5 marks) b) How do you achieve data abstraction and distinguish logical data independence and physical data independence. (5 marks)	10
2.	Illustrate in detail the components of Database Management System with a neat diagram.	10
3.	Consider the following requirements list for an airline reservation system. The airline has unique name, owner name, location, customer ratings. Each airline has one or more airplanes. An airplane has a model number, a unique registration number, and the capacity to take one or more passengers. An airplane flight has a unique flight number, a departure airport, a destination airport, a departure date and time, and an arrival date and time. A flight can be operated by many pilots, but a pilot can fly many flights. Each flight is carried out by a single airplane. Each pilot has pilot id, name, experience, and date of joining. A passenger has given names, a surname, and a unique email address. A passenger can book a seat on a flight. Each booking has booking id, amount, and the date of booking. Make necessary assumptions and construct an ER diagram for the above scenario.	10
4.	Draw an EER diagram to capture the requirements as stated below: A University database must keep records of faculty, Program, course, and student information. Each faculty has ID, name, cabin no, date of joining, experience, Degree (A faculty might be completed more than one degree). A faculty can handle a maximum of three courses (0,3) and proctoring a maximum of 20 students. The Salaried faculty members have DA, HRA, PF and Gross, whereas the consolidated faculties have just consolidated pay. Each student has a register number, name (Fname, Lname), address, dob, age, and Aadhar number. The university offers one or more programs. A program is made up of one or more courses. A student must enroll in any one of the programs. A	10

student takes the courses that are part of his/her program. When a student registers for a course, the year and semester he/she attempted need to be recorded. When he finishes the course, a grade (such as A or B) and a mark are recorded. A program has a name, a unique program_identifier, and the total credit points required to graduate. Each program is headed by one faculty member. A course has a name, a credit point value, the year it commenced. Each course can have zero or more prerequisite courses. Each course can be identified by the program it belongs to.

5. Convert the below ER diagram to Relation Schema.

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