



ओड़ीशा केंद्रीय विश्वविद्यालय  
(केंद्रीय विश्वविद्यालय अधिनियम 2009 के तहत स्थापित)  
**Central University of Odisha**  
(Established Under the Central Universities Act, 2009)

End-Term Examination-2021 (Question paper for Home Based Open Book Examination)

Subject: Computer Science

Course Name: Fundamentals of Database Systems

Course Code: BCA 205

Full Mark: 60

Time Duration: 3 Hrs

Date of Examination: 04.02.2021

Answer any FIVE questions including Question No.1 which is compulsory. All parts of a question should be answered at one place only. Marks distribution to question is mentioned in parenthesis.

Q1. Answer all the following sub points. [10x2 marks]

- What are the applications of database?
- Explain the concept of physical data independence.
- What is the difference between Single-Valued and Multi-valued Attributes?
- Define the following.  
(i) Entity (ii) Weak entity
- What is meant by Domain? Give two examples.
- What is the importance of relational algebra?
- What is meant by foreign key constraint? Give an example.
- What is DML? Write any two DML commands.
- Define view. Give an example.
- Briefly explain the Join Operation.

Q2. Answer all the following sub points. [2X5 marks]

- Explain the three-schema architecture.
- What is DBMS? Explain the Difference between File System and DBMS.

Q3. Answer all the following sub points. [2X5 marks]

- Explain the concept of generalization in EER with an example.
- Explain the SELECT operation and PROJECT operation with an example.

Q4. Answer all the following sub points. [2X5 marks]

- Explain aggregation functions of SQL.
- List out the steps in the process of Relational Database Design.

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Subject: Computer Science

Course Name: VB.Net

Course Code: BCA 303

Full Mark: 60

Time Duration: 3 Hrs

Date of Examination: 02.02.2020

- Q5. a) Write SQL queries by using the following relation EMPLOYEE [2X5 marks]  
(i) Retrieve all employees whose address is in Houston, Texas.  
(ii) Retrieve all employees in department 5 whose salary is between \$30,000 and \$40,000.

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000	888665555	5
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000	987654321	4
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000	888665555	4
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000	987654321	4
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000	NULL	1

- (b) Explain any three properties of transaction.

[10 marks]

Q6. What is meant by normalization? Explain 1NF, 2NF and 3NF.

Q7. Write short notes on any two of the following.

[2X5 marks]

- Database Security.
- Transaction Processing.
- Division Operation.

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