

[4]

SECTION 'C'

$4 \times 10 = 40$

Long Answer questions (Word limit 400-450 words.)

UNIT-I

- Q.1. What are the various types of DBMS uses? Explain with suitable example.

OR

Explain the relational algebra with example.

UNIT-II

- Q.2. Explain the Integrity constraints.

OR

Explain group by and order by clause.

UNIT-III

- Q.3. What is the difference between program and process? Explain various states of process.

OR

Explain memory management system.

UNIT-IV

- Q.4. What is network operating system? Write difference between network and distributed operating system.

OR

What is concurrency in operating system? Explain its principal advantages.

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[1]

ROLL NO.....

MATH. 403/22

IV SEMESTER EXAMINATION, 2022

M. Sc. (MATHEMATICS)

PAPER-III

OPERATING SYSTEM & DATABASE MANAGEMENT SYSTEM

TIME: 3 HOURS

MAX.- 70

MIN.- 14

Note: The question paper consists of three sections A, B & C. All questions are compulsory.

Section A- Attempt all multiple choice questions.

Section B- Attempt one question from each unit.

Section C- Attempt one question from each unit.

SECTION 'A'

MCQ (Multiple choice questions)

$2 \times 8 = 16$

- Which of the following is component of the DBMS -
(a) Data (b) Data Language
(c) Data Manager (d) All of the above
- Which of the following represents a query in the tuple relational calculus
(a) $\{ \} \{P(t)|t\}$ (b) $\{t|P(t)\}$
(c) $t|P(t)|t$ (d) All of the mentioned

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3. For designing a normal RDBMS which of the following normal form is considered adequate?
- (a) 4NF (b) 3NF (c) 2NF (d) 5NF
4. The ability to query data, as well as insert, delete and alter tuples is offered by -----
- (a) TCL (Transaction Control Language)
(b) DCL (Data Control Language)
(c) DDL (Data Definition Language)
(d) DML (Data Manipulation Language)
5. CPU scheduling is the basis of -
- (a) Multiprogramming operating systems
(b) Larger memory sized systems
(c) Multi processor system
(d) None of the mentioned
6. Virtual memory is -
- (a) Large secondary memory (b) Large main memory
(c) Illusion of large main memory (d) None of the above
7. In ----- the processor issues an I/O command, on behalf of a process to an I/O module -
- (a) Programmed I/O (b) Interrupt driven I/O
(c) Direct memory access (d) Virtual memory access
8. In distributed system, each process has its own -----
- (a) Local memory (b) Clock
(c) Both local memory and clock (d) None of the mentioned

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SECTION 'B'

4 × 6 = 24

Short Answer Type Questions (Word limit 200-250 words.)

UNIT-I

- Q.1. Explain the concept of data models and describe the various types of models.

OR

Define the term DBMS. Discuss instances and schema with suitable examples.

UNIT-II

- Q.2. Write a short note on structured query language.

OR

Explain the operation of the SQL by which data can be modified.

UNIT-III

- Q.3. What are the different functions of an operating system? Explain in brief each function.

OR

Write the difference between logical memory space and physical memory space.

UNIT-IV

- Q.4. Explain the interrupt driven Input / Output.

OR

Explain the security in operating system.