

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester MCA Degree Regular and Supplementary Examination July 2021

Course Code : RLMCA266**Course Name : ADVANCED DATABASE SYSTEMS**

Max. Marks: 60

Duration: 3 Hours

PART A*Answer all questions, each carries 3 marks.*

Marks

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|---|---|-----|
| 1 | Why sorting of data plays an important role in database systems? | (3) |
| 2 | What is the query cost equation for performing selection operation using primary index? | (3) |
| 3 | Identify the fundamental characteristics of object-oriented paradigm. | (3) |
| 4 | What do you understand by object ID? | (3) |
| 5 | Write a short note on data transparency. | (3) |
| 6 | Define the term fragmentation in distributed databases. | (3) |
| 7 | What is the function of 'zookeeper' in Hbase architecture? | (3) |
| 8 | Why do we use NoSQL database in social networking applications? | (3) |

PART B*Answer any one question from each module. Each question carries 6 marks.***Module I**

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| 9 | Write an abstract of the speed, cost and data capacity of each media in the storage device hierarchy using a neat sketch. | (6) |
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OR

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| 10 | How do you organize files using heap and sequential techniques? List the advantages and disadvantages of each. | (6) |
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Module II

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| 11 | What is an index? Which are the various indices used in database systems? Prepare a short note on each. | (6) |
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OR

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| 12 | Explain the properties and structure of B ⁺ tree index file with an example. | (6) |
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Module III

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| 13 | Using a block diagram, describe the different stages of a query statement execution. | (6) |
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OR

- 14 With the help of sample data, employ the working of external sort merge algorithm. (6)

Module IV

- 15 Which are the various object oriented data relationships commonly found in object relational data models? (6)

OR

- 16 Define XML. What are the advantages of XML? Discuss XML features. (6)

Module V

- 17 Illustrate how distributed transactions are deployed in a distributed database environment. (6)

OR

- 18 Compare centralized and distributed database systems. (6)

Module VI

- 19 Describe the various NoSQL database servers that can be implemented for data storage. (6)

OR

- 20 Examine how replication is implemented in mongoDB. (6)
