SEAT No. :

P562

[5840]-103

M.Sc. (Computer Science)
CSUT -113 : DATABASE TECHNOLOGIES
(2019 Pattern) (Semester-I) (Revised)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) *Question 1 is compulsory.*
2) *Solve any five questions from Q. 2 to Q. 7.*
3) *Questions from Q.2 to Q. 7. carry equal marks.*

Q1) Solve any five of the following: **[10]**

a) List some popular document databases.

b) Graph databases are called as odd man out fish in NOSQL pond comment.

c) What are ACID transactions?

d) What is polyglot programming?

e) State any two reasons to use NOSQL technologies.

f) What are key value databases?

Q2) Attempt all. **[12]**

a) i) Explain the term NOSQL. **[2]**

ii) Differentiate between relational databases and NOSQL databases.**[5]**

b) Explain any suitable use cases for graph databases. **[5]**

Q3) Attempt all. **[12]**

a) i) What are Qurums? **[2]**

ii) Explain read and write quorum. **[5]**

b) Model the following Department system as a document database. consider a set of students, course and marks. A student can register for more than one course.

Assume appropriate attributes and collections as per query requirements and Answer the following queries. **[5]**

i) Count the number of students having more than 80 marks.

ii) List the name and age of the oldest 5 students.

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Q4) Attempt all. **[12]**

    a)   i)   What is consistency? **[2]**

        ii)   What are two ways to maintain session consistency? **[5]**

    b)   A Rawat furniture showroom has different types of furniture like sofa sets, tea tables, computer tables cupboards, beds & dinning tables. There are different types of sections for each furniture types. Each section handaled by sales staff. one sales staff can handle more than one sections. Mr. Kale enquired about brown soft set and computer table. Mr. Gore has purchased red colour bed after enquiry. **[5]**

        i)   Identify different labels, nods, relationships and respective properties.

        ii)   Draw a graph model using same.

Q5) Attempt all. **[12]**

    a)   i)   What are version stamps? **[2]**

        ii)   How version stamps are applied on multiple nodes. **[5]**

    b)   Explain mapreduce technique with example. **[5]**

Q6) Attempt all. **[12]**

    a)   i)   Define Replication **[2]**

        ii)   Explain in brief master slave replication. **[5]**

    b)   What are different points to be considered while choosing a database. **[5]**

Q7) Write short notes on any Two of the following. **[12]**

    a)   What is super column family? Explain. **[2]**

    b)   Write a short note on materialized views. **[5]**

    c)   Explain various barriers of NOSQL. **[5]**

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