

22521

23124

3 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following: **10****
- a) Define lock and list its categories.
 - b) Enlist any four characteristics of XML.
 - c) Write any four benefits of NoSQL.
 - d) Enlist any four features of BI.
 - e) Name any four common MongoDB datatypes.
 - f) Write any four properties of OZD.
 - g) List any four features of Hadoop Cloudera combination.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Explain any two architectural design for parallel database.
 - b) Compare SQL and NoSQL. (Any four points)
 - c) Explain any two basic operation with MongoDB shell with example.
 - d) Explain complex datatypes with example.
- 3. Attempt any THREE of the following:** **12**
- a) Draw data warehousing life cycle and explain.
 - b) Write output for the following command executed on MongoDB shell.
 - i) > new Date ("2010/1/1"/;
 - ii) > "Hello, world!" . replace ("world, "MongoDB");
 - c) Explain Big data with its any four advantages.
 - d) Explain Mobile database with neat diagram.
- 4. Attempt any THREE of the following:** **12**
- a) Explain two phase locking protocol with example.
 - b) Explain with example Aggregation pipeline.
 - c) Compare supervised and unsupervised machine learning. (Any four points)
 - d) Describe any two types of data warehouse architecture.

5. Attempt any TWO of the following:**12**

- a) Write query to execute find () function on Collection : Inventory
- To display all documents in the collection.
 - To display all documents where the status equal "D".
 - To display all documents where the status equals either "A" or "D".
 - To display all documents where the status equals "A" and qty. is less than 30.
 - To display all documents where the status equals "A" or qty. is greater than 30.
 - To display all documents where the status equals "A" and either qty. is less than 30 or item starts with character p.
- b) Explain structured types and inheritance in SQL.
- c) Consider the code given below for "books.xml"
- ```
< ? xml version = "1.0" encoding = "UTF-8" ? >
<bookstore>
<book category = "CHILDREN">
<title lang = "en"> Harry Potter </title>
<author> J.K. Rowling </author>
<year> 2005 </year>
<price> 29.99 </price>
</book>
<book category = "WEB">
<title lang = "en"> Learning XML </title>
<author> Erik T. Ray </author>
<year> 2003 </year>
<price> 39.95 </price>
</book>
</book store>
```

Write the X query for the following:

- Select all the title elements in the "book.xml" file.
- Select all the book elements under the bookstore element that have a price element with a value that is less than 30.

**6. Attempt any TWO of the following:****12**

a) Consider the student table given below:

Enrollment Id	First name	Last name	City	Contact No.	Course Id
1011	Dipanjan	Gupta	Kolkata	9272567819	C345
1012	Sheyashi	Gupta	Hooghly	9816782341	C689
1013	Milan	Gupta	Kolkata	7861234879	C709
1014	Ishan	Mukherjee	Hooghly	8989123214	C345
1015	Juhi	Mehta	Kolkata	9801278383	C689
1016	Shubham	Roy	Malda	8967095626	C100
1017	Rahul	Sinha	Malda	9834583213	C689

- i) Apply horizontal fragmentation with key column "city".
- ii) Apply vertical fragmentation with key column "enrollment id".

b) Compare datamining and data warehousing. (any six points)

c) Consider following input data for your Map Reduce program:

Welcome to Hadoop class

Hadoop is good

Hadoop is bad

Draw Map Reduce architecture and explain its phases.

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