APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER

Q. P. Code : 08CSE19-6042B-1 **(Pages: 3)** **Name: .....**

Reg. No:.....

SECOND SEMESTER M.TECH. DEGREE EXAMINATION MAY 2019

Branch: Computer Science and Engineering Specialization: Computer Science and Engineering

08CS6042(B): BIG DATA ESSENTIALS

(Common to CSE)

Time:3 hours **Max. marks: 60**

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.		Module 1	Marks
1.a		List any two real world big data sources where the "velocity" characteristic dominates.	**3**
		Answer b or c	
b		Write about three big data use cases in detail.	**6**
c	i.	Identify and list key roles in a data analytics project.	**2**
	ii.	List different steps in a data analytics life cycle in sequence.	**2**
	iii.	Define analytical sandbox.	**2**

Q.no.	Module 2	Marks
2.a	How Hadoop makes the Namenode resilient to failures?	**3**
	Answer b or c	
b	Describe MapReduce Framework in detail. What are the limitations of MapReduce framework and how it is solved in YARN?	**6**
c	Justify the need of MultipleInputs and MultipleOutputs formats provided by Hadoop with proper examples.	**6**

Q.no.	Module 3	Marks
3.a	Differentiate Partitioners and Combiners used in a MapReduce program.	**3**
	Answer b or c	

b List the general sequence of steps to be followed in development of a MapReduce Application **6**

c Suppose you have a large tabular data, which stores your internal marks for each subjects in the current semester. Structure of the tab separated data is given below: **6**

<SubjectCode RollNo Name Marks>

Design a MapReduce algorithm to find total marks of each student. Also draw MapReduce data flow diagram for the same.

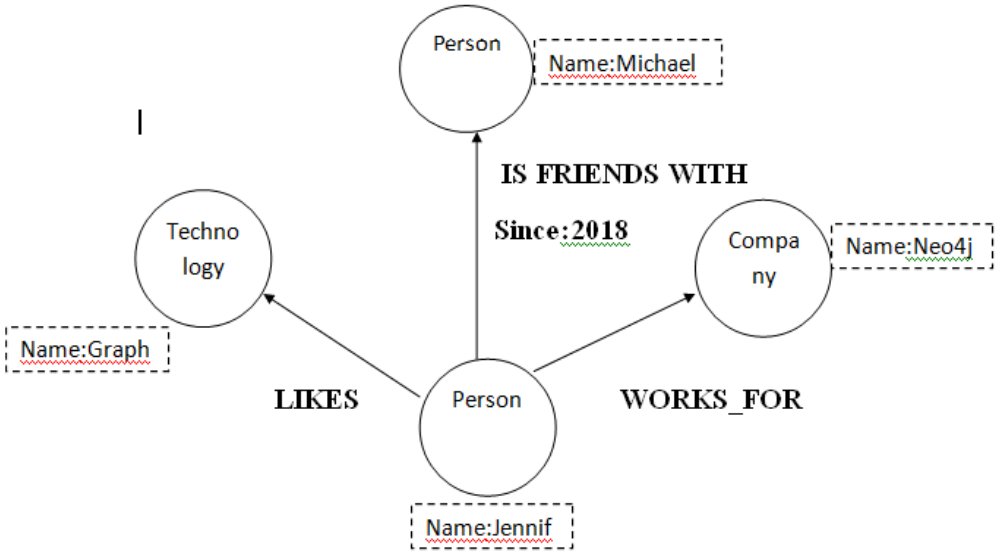
Q.no.	Module 4	Marks

4.a How data gets organized in HBase table? **3**

Answer b or c

b Distinguish different types of NoSQL datastores with respect to its characteristics and use cases along with an example for each type. **6**

c Write about Neo4j and write sequence of statements to create the following graph using Neo4j. **6**



Q.no.	Module 5	Marks

5.a List various limitation of MapReduce Framework. **4**

Answer b or c

b State and explain HACE theorem in detail. **8**

c Write any one big data clustering algorithm with an example. **8**

Q.no.		Module 6	Marks
6.a		Draw and explain Real Time Big Data Analytics Stack.	**4**
		Answer b or c	
b	i.	How in memory models works faster than MapReduce? Explain with Apache Spark as example.	**4**
	ii.	List any two Transformations and Actions that can be performed on a Spark RDD (Resilient Distributed Dataset).	**4**
c	i.	List various components and working principle of a Bulk Synchronous Parallel model computer.	**4**
	ii.	Write short notes on Apache Giraph.	**4**