Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA - SEMESTER– II EXAMINATION – WINTER 2019

Subject Code: 3529201   **Date: 24-12-2019**

Subject Name: Business Analytics

Time: 2.30 PM to 5.30 PM   **Total Marks: 70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1		Definitions / terms / explanations / short questions based on concepts of theory/practical	**14**
	(a)	What is machine learning?	
	(b)	Give examples of machine generated data.	
	(c)	Give the names of operations which can be performed on an OLAP cube.	
	(d)	What is data warehouse?	
	(e)	What is knowledge discovery?	
	(f)	What are the objectives of Business Intelligence?	
	(g)	What is web analytics?	
Q.2	(a)	What is the scope or type of Business Analytics?	**07**
	(b)	Describe the contribution and purpose of using Information technology in business.	**07**
		OR	
	(b)	Who are the information users in any organization?	**07**
Q.3	(a)	Explain the difference between OLTP and OLAP system.	**07**
	(b)	Storing unstructured data poses various challenges. Explain.	**07**
		OR	
Q.3	(a)	Explain data models used in OLAP system.	**07**
	(b)	What are the sources of digital data?	**07**
Q.4	(a)	What is big data? Explain the 5 V's of big data.	**07**
	(b)	Describe the areas where data mining can be applied successfully.	**07**
		OR	
Q.4	(a)	Explain the difference between Business Intelligence and Business analytics.	**07**
	(b)	Explain how social media analytics can be used for getting proper insights into business and for growth of business.	**07**

Q.5 **CASE STUDY:**

A major multi-specialty hospital became mired in too much data and not enough insight. Even a simple business question could take weeks or months to answer. The hospital's leadership wanted to improve decision making by using data and advanced analytics in an efficient, cost-effective way.

An analytics consultant who was hired by the hospital management was given the following details.

The hospital already has a well-built OLTP database management system in which data related to the following is well maintained.

- Clinical data related to patients like their entire health & treatment records. The details of OPD patients as well as admitted patients. The date and time of admittance and discharge, the billing per patients, re-admitted patients, etc.

- Data of employee's personal records and their payroll. (Doctors, nurses, paramedical staff, ward attendants, clerical staff. Etc.)

- Records related to specialized departments running in the hospital which are general consultation, general surgery, pathology, radiology, cardiology, neurology, ophthalmology, and oncology.

- Assets records which includes the purchase and maintenance history of hospital assets and equipment.

- Hospital legal and statutory compliances data like registration of doctors with medical councils, nurse and paramedical staff qualifications, bio medical waste disposals, legal suits framed by some patients against the hospital, etc.

- Financial records related to the revenue generated form treatments for OPD consultation and admitted patients, under different specialist. Also records of expenses of manpower, medicines, disposables, legal claims settled, etc. under various departments.

- Data related to patients grievances and complaints.

The management is worried that such a huge variety and volume of data lying in their database is of no use unless proper descriptive, predictive and prescriptive analytics is applied and they get good insight reports when they want to take some crucial decisions.

The consultants have to answer to the following

(a) Suggest financial metrics (dimensions) which are important from management point of view to undertake crucial financial decisions like revenue, expenses and investments to be made based on historical data.   **07**

(b) Suggest analytics related to the treatments and treatment quality taking into consideration the reputation of the hospital. Which dimensions should be measured and at what frequency. **07**

OR

Q.5 (a) Suggest analytics measures and dashboard related to HR analytics for employees at the hospital. Also suggest how can the hospital use predictive analytics to know the advances in medical fields and equipment so that they can take decisions related to new equipment purchases and training of their core medical personal. **07**

(b) Suggest measures to analyze patient's sentiments, grievances handling and satisfaction with the hospital. **07**

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