



**INDIAN INSTITUTE OF MATERIALS MANAGEMENT**  
**Post Graduate Diploma in Materials Management– 2years**  
**Post Graduate Diploma in Logistics & SCM**  
**Paper 5 ( Enrollment code : PGMM, PGSM)**  
**Business Analytics**

**Dec 2024**

**Date:** 19.12.2024  
**Time:** 2.00 p.m to 5.00 p.m

**Max. Marks** 70  
**Duration** 3 hours

**Instructions**

1. Part A is compulsory. Each sub question carries one mark.
2. In Part B answer any 3 questions. Each question carries 10marks
3. Part C is a case study with sub questions and it is compulsory.

**Total marks-20**  
**Total marks-30**  
**Total marks-20**

**PART A**

**(Total 20 marks)**

**Q.1. Fill in the blanks.**

**[ 5 marks]**

- a. \_\_\_\_\_ uses array based multidimensional storage engines for multidimensional views of data
- b. \_\_\_\_\_ provides critical information such as market trends to the executives and top level management for making strategic decisions
- c. \_\_\_\_\_ is a statistical technique to show the association between a pair of variables
- d. \_\_\_\_\_ is a statistical modeling technique that helps us determine which variables have an impact and how they relate to one another
- e. \_\_\_\_\_, is a specialized type of deep learning algorithm mainly designed for tasks that necessitate object recognition, including image classification, detection, and segmentation

**Q.,2 State True or False**

**[ 5 marks]**

- a. Expanding into new geographic markets or demographic segments demands thorough market research and strategic planning. Is a programmed decision
- b. The purpose of pruning in decision tree is to encourage overfitting
- c. Data science can be used for Sentiment analysis
- d. Analytics is helpful for government for building smart cities
- e. The operation of moving from finer granular data to coarser granular data is called Drill down

**Q.3 Tick the correct option:**

**[ 5 marks]**

- a. What is entropy used for in decision tree algorithms?
  - i. To measure the impurity or randomness of a dataset
  - ii. To normalize the variance of the target variable
  - iii. To normalize the distribution of residuals
  - iv. To penalize complex models
- b. In a decision tree, what are the internal nodes responsible for?
  - i. Representing the root node of the tree
  - ii. Making predictions based on the input features
  - iii. Connecting nodes to form branches
  - iv. Testing specific conditions on input features
- c. What is the primary purpose of a Recurrent Neural Network (RNN)?
  - i. Image classification
  - ii. Text generation
  - iii. Reinforcement learning
  - iv. Object detection
- d. A \_\_\_\_\_ is a computer application used to support determinations, decisions, and courses of action in an organization or a business.
  - i. Decision Support System
  - ii. Transaction Process System
  - iii. Executive Support System
  - iv. None of the above

- e. If the null hypothesis is false then which of the following is accepted?
- Null Hypothesis
  - Positive Hypothesis
  - Negative Hypothesis
  - Alternate Hypothesis

**Q. 4 Expand the following:**

**[ 5 marks]**

- ANOVA
- CNN
- MLP
- DSA
- ROLAP

## **PART B**

**[30 marks]**

**(Answer any three. Each question carries 10 marks)**

- Q. 5** Explain the difference between structured and semi structured data with examples and description. Also explain the difference between qualitative data and quantitative data with suitable examples. **[ 10 marks ]**
- Q.6** Explain the difference between Business Intelligence and Business Analytics. Explain SWOT analysis Model and PEST analysis model in detail. **[10 marks ]**
- Q.7** Explain the advantages of decision tree for data mining. Also explain the four layer model, its benefits and applications in business world. **[10 marks ]**
- Q.8** Explain predictive modelling. Also explain the difference between data driven models and logic driven models. Explain how will you evaluate the model performance **[10 marks ]**
- Q.9** Explain the applications of data visualization. Explain different types of data visualization and the tools used for data visualization. **[10 marks ]**

## **PART C**

**[20 marks]**

**Q. 10 Case Study (compulsory)**

A major car dealer in the city of New York sells more cars than any other city in the United States. The dealer not only sells new cars but also deals in old cars. The service center is also operated by the dealer, which provides maintenance and repair service to its customers only. Outside cars are not serviced here.

Each of the divisions had its own software application but the CEO of the company wanted to have an integrated system, so that they can have a unified view of the customers and all the services. They have hired an IT company to develop the application. Business analyst has created a consolidated Entity relationship diagram during the elicitation phase, depicting all the entities in the system at that stage.

### **Questions**

- What integrated services will you suggest to the CEO of the company to have a unified view of customers and services.
- How do you think that various business analytics tools and visualization techniques will help the company to complete integration of sales, products and services.

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