

Total No. of Questions : 8]

SEAT No. :

PA-1620

[Total No. of Pages : 2

[5926]-254

**T.E. (Artificial Intelligence and Machine Learning)**  
**BUSINESS INTELLIGENCE**  
**(2019 Pattern) (Semester - I) (Elective - I) (318545D)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Figures to the right side indicate full marks.*
- 4) Assume Suitable data necessary.*

- Q1)** a) Explain in detail Closed Loop BPM Cycle. [6]  
b) Write a note on different types of Charts and Graphs related to Business Report. [6]  
c) What is a Business Report and also explain the components of Business Reporting Systems in detail. [6]

OR

- Q2)** a) Explain in detail different BI tools. [6]  
b) Write a note on Business Performance Management. [6]  
c) Explain the 4 Perspectives of BSC in detail. [6]

- Q3)** a) Explain what is Descriptive and predictive analytics in detail. [6]  
b) Explain Multiple Goals & Goal Seeking in detail. [6]  
c) Write a note on decision tree related to decision analysis. [5]

OR

- Q4)** a) Explain Decision Modeling with Spreadsheets & Mathematical Programming Optimization in detail. [6]  
b) Write a note on Decision Support Systems Modeling. [6]  
c) Explain what is certainty & uncertainty related to Decision Making in detail. [5]

**P.T.O.**

- Q5)** a) Explain use of Business Intelligence in Banking in detail. [6]  
b) State applications of Business Intelligence and explain use of Business Intelligence in Retail Industry in detail. [6]  
c) Explain the concepts of Business Intelligence in Production. [6]

OR

- Q6)** a) Explain use of Business Intelligence in Fraud Detection in detail. [6]  
b) Write a note on role of Visual and Business Analytics (BA) in BI. [6]  
c) Explain the concepts of Business Intelligence in Telecommunications. [6]

- Q7)** a) Explain in detail BI Search & Text Analytics. [6]  
b) Write a note on Impact of Analytics in Organizations. [6]  
c) Explain Advanced Visualization in detail. [5]

OR

- Q8)** a) State the Emerging Technologies in Business Analytics. Write a note on Predicting the Future with the help of Data Analysis. [6]  
b) Write a note on Location-Based Analytics for Organizations. [6]  
c) Write a note on Issues of Legality related to Business Analytics. [5]



Total No. of Questions : 8]

SEAT No. :

**PA-1621**

[Total No. of Pages : 2

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**T.E. (Honours in Artificial Intelligence and Machine Learning)**

**COMPUTATIONAL STATISTICS**

**(2019 Pattern) (Semester - I) (310301)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.

**Q1) a) What is Sensitivity? Explain Types of Statistical Tests. [8]**

**b) Define the following terms. [4]**

- i) Accuracy
- ii) Recall
- iii) Precision and
- iv) F-measure

**c) Consider the confusion Matrix given below. Calculate Accuracy, Recall and Precision. [6]**

Predicted class \ Actual class	CAT	Not CAT
CAT	150	10
Not CAT	20	100

**OR**

**Q2) a) State and explain in depth the typical Analysis procedure used in statistical analysis. [8]**

**b) Differentiate the training error vs testing error. [4]**

**c) What is Hypothesis Testing? Comment on type-I and type-II error. [6]**

**Q3) a) Explain hyperparameter Tuning with GridSearchCV. [8]**

**b) State and Explain different Feature Scaling methods. [9]**

**OR**

**Q4) a) Explain Ridge Regression and Lasso Regression in details. [8]**

**b) Explain three different cross validation Techniques. [9]**

**P.T.O.**