Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **19MS3007** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BUSINESS ANALYTICS** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Using a suitable case study, analyze the business prospects using descriptive, prescriptive and predictive analytics. | CO1 | 10 |
| b. | Explain the various measures of location and dispersion used in statistics. | CO1 | 10 |
| **(OR)** | | | | |
| 2. | a. | A community health-status survey obtained the following demographic information from the respondents:   |  |  | | --- | --- | | Age | Frequency | | 18 – 29 | 297 | | 30 – 45 | 743 | | 46 – 64 | 602 | | 65 + | 369 |   Compute the relative frequency and cumulative relative frequency of the age groups and plot an ogive. | CO3 | 10 |
| b. | Given is the dataset which shows the temperature of the day and number of customers who visited an icecream shop on those days. Explain the various measures of association and calculate these measures for the given dataset. Identify the outliers also, if any.   |  |  | | --- | --- | | Temperature | Number of Customers | | 98 | 15 | | 87 | 12 | | 90 | 10 | | 85 | 10 | | 95 | 16 | | 75 | 7 |   Infer the relationship between the two variables from the calculated measures. | CO3 | 10 |

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| 3. | a. | | The number and frequency of Atlantic hurricanes annually from 1940 through 2012 is tabulated below:   |  |  | | --- | --- | | Number | Frequency | | 0 | 5 | | 1 | 16 | | 2 | 19 | | 3 | 14 | | 4 | 3 | | 5 | 5 | | 6 | 4 | | 7 | 3 | | 8 | 2 | | 9 | 3 | | 10 | 1 | | 11 | 2 | | 12 | 1 |   Find the probabilities of 0–12 hurricanes each season using these data.  Assuming a Poisson distribution and using the mean number of hurricanes per season from the empirical data, compute the probabilities of experiencing 0–12 hurricanes in a season. How good does a Poisson distribution model this phenomenon? Construct a chart to visualize these results. |  | 10 |
| b. | | A survey of shopping habits found the percentage of respondents that use technology for shopping shown in the figure.    For example, 17.39% only use online coupons; 21.74% use online coupons and check prices online before shopping, and so on.  a. What is the probability that a shopper will check prices online before shopping?  b. What is the probability that a shopper will use a smart phone to save money?  c. What is the probability that a shopper will use online coupons?  d. What is the probability that a shopper will not use any of these technologies?  e. What is the probability that a shopper will check prices online and use online coupons but not use a smart phone? | CO3 | 10 |
| **(OR)** | | | | | |
| 4. | a. | Explain the various sampling methods in detail. | | CO3 | 10 |
| b. | The monthly sales of a mobile phone shop have been distributed with a standard deviation of $900. A statistical study of sales in the last nine months has found a confidence interval for the mean of monthly sales with extremes of $5663 and $6839.  i) What is the average sales over the nine month period?  ii) What is the confidence level for this interval? | | CO3 | 10 |
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| 5. | a. | Explain the different models in business analytics. | | CO1 | 10 |
| b. | Classify data based on the type of measurement scale and explain each with suitable examples. | | CO1 | 10 |
| **(OR)** | | | | | |
| 6. | a. | | A manufacturing unit assembles electronic components for a special test equipment. If the components are bought from outside it costs Rs. 700 per unit. If the company produces it on its own it needs a fixed cost of Rs. 7,000/- and a labor charge of Rs. 7/- per unit. Calculate the break even point and determine the number of units over which own production would be profitable. | CO3 | 10 |
| b. | | Explain the role of various types of charts in visualizing different types of data. | CO1 | 10 |
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| 7. | a. | | Explain classification methods and how it is applied for mining data using appropriate examples. | CO2 | 10 |
| b. | | Discuss the significance of various data mining approaches in fetching information. | CO2 | 10 |
| **(OR)** | | | | | |
| 8. | a. | | Explain association rule mining with appropriate examples. | CO3 | 10 |
| b. | | Explain logistic regression with suitable examples. | CO4 | 10 |
|  | | | **Compulsory**: |  |  |
| 9. | a. | | Explain the forecasting models for stationary time series. | CO4 | 10 |
| b. | | Illustrate the role of decision trees in decision making with appropriate examples. | CO6 | 10 |