a) Develop a regression equation for the results?
b) Locate F statistics? Can the hypothesis of no overall predictive value be rejected at $\alpha = .01$?
c) Locate the t statistic for the coefficient of promotion, development and research?
d) Test the research hypothesis that $\beta 1, \beta 2, \beta 3 \neq 0$. Use $\alpha = 0.5$
e) State the conclusion of the test in part (d)

Q5. What is Discriminant analysis? Explain briefly the stages of Discriminant Analysis with appropriate illustration?

Q6. What do you understand by Cluster analysis? Explain the application of cluster analysis using appropriate example

Q7. Explain following?
a) Design of experiments
b) Classification Tree
c) Neural networking
d) Random Number
e) Deep Learning

Q8. What is Big Data? Explain the challenges faced by organisations using the big data?

-END OF PAPER-

2112M051

BACHELOR OF VOCATION
Management-Financial Services
Subject: Data Analytics
Subject Code: BFS-709
Semester: Fifth
December 2021
Theory (External): 70 Marks
Time: 03 Hours

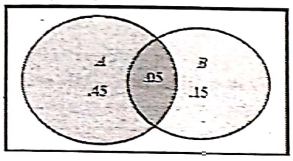
Instructions to the Students

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 2 marks.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 10 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled

Roll Number

SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)
(10x2=20 Marks)

A. Events and event probabilities are shown in the Venn diagram. Use this diagram to determine the following probabilities:
   a. P(A), P(A)
   b. P(B), P(B)
   c. P(A B)
   d. P(A B)



B. What is hypothesis testing and what are its types?

C. Differentiate between supervised and unsupervised learning?

D. What do you understand by logistics regression?

E. What is application of ANOVA?

F. What are various types of non-parametric test?

G. What do you understand by machine learning?

H. What is reinforcement learning?

I. What are assumptions of OLS?

J. What is perspective analytics?

SECTION –B (ESSAY TYPE QUESTIONS)
(5x10=50 Marks)

Q1. What is descriptive statistics? Explain the concept using suitable illustrations for different measures used in descriptive statistics.

Q2. a) Explain Type I and Type II error with illustration.
b) A corporation maintains a large fleet of company cars for its salespeople. To check the average number of miles driven per month per car, a random sample of n=40 cars is examined. The mean and standard deviation for the sample are 2,752 miles and 350 miles, respectively. Records for previous years indicate that the average number of miles driven per car per month was 2,600. Use the sample data to test the research hypothesis that the current mean μ differs from 2,600. Set α = 0.05 and assume that σ can be estimated by s. (for α = 0.05, +/- =1.96)

Q3. What do you mean by regression analysis? Explain the types of regression analysis with example?

Q4. Following is the illustration of multiple regression model conducted.

```
. regress Sale Promo Devel Research

      SOURCE |       SS       df       MS      Number of obs =      24
-------------+------------------------------   F(  3,    20) =   22.28
       MODEL |  43901.7677     3  14633.9226   Prob > F      =  0.0000
    Residual |  13136.2323    20  656.811614   R-squared     =  0.7697
-------------+------------------------------   Adj R-square  =  0.7351
       Total |    57038.00    23  2479.91304   Root MSE      =  25.628

------------------------------------------------------------------------------
       SALES |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       Promo |    136.0983   28.10759     4.842   0.000     77.46689    194.7297
       Devel |   -61.17526   50.94102    -1.201   0.244    -167.4364    45.08585
    Research |   -43.69508   48.32298    -0.904   0.377     -144.495    57.10489
       _cons |    326.3893   241.6129     1.351   0.192    -177.6063    830.3849
------------------------------------------------------------------------------
```