

Plot No. 2, Knowledge Park-III, Greater Noida (U.P.) –201306
PGDM/PGDM (General) (2022-24)
EXCEL FOR MANAGERS (TERM- III)

Subject Name: **Business Analytics**
Sub. Code: **PGIT32**

Time: **02.00 Hrs**
Max Marks: **40**

INSTRUCTIONS

1. All questions are to be solved using MS-Excel on an individual Computers/LAPTOPS.
2. Use of MS Excel 2019 version /SPSS 26.0 is suggested.
3. After attempting all the sub parts of the question, COPY in your own Pen Drive (PD) and hand over the PD to the invigilator for SUBMISSION. MAKE SURE YOU SUBMIT THE RIGHT FILE
4. COPY of content/Use of others PD would be considered as UFM.
5. Use of Mobile phones/Smart watch/Calculators/Wi-Fi hotspot/Browser/WhatsApp or similar apps/Earphones is NOT allowed in any way.

Question ONE is compulsory. Attempt any four questions from the rest. [8 Marks x 5=40 Marks]

CO1- Apply effective business analytics within an organization for decision-making L3
CO2- Analyze complex problems using advanced analytics tools/Excel/Power BI L4
CO3- Analyze predictive and forecasting techniques for business predictions L4
CO4- Propose decisions using descriptive, predictive business analytics results L5

1.

- a. Identify and write the Data type in the following data. 02 Marks

Gender	Age	Education	Income	Spending	Ad Frequency	Stereotype
Female	23	Some undergraduate courses	\$10,000 to < \$20,000	500	10	9

- b. Calculate the frequency and relative frequency of each Loan purpose in data set below. Also calculate the number of customers where checking balance is less than 500. 02 Marks
- c. The following table reports the percentage of stocks in a portfolio for nine quarters from 2017 to 2019.
Use exponential smoothing with a smoothing constant of $\alpha = 0.2, 0.3, 0.4$ to find out which smoothing constant provide the accurate forecast. Interpret the findings. 04 Marks

2. **Case-** Metropolitan Research, a consumer research organization, conducts surveys designed to evaluate a wide variety of products and services available to consumers. In one particular study, Metropolitan looked at consumer satisfaction with the performance of automobiles produced by a major Detroit manufacturer. A questionnaire sent to owners of one of the manufacturer's full-sized cars revealed several complaints about early transmission problems. To learn more about the transmission failures, Metropolitan used a sample of actual transmission repairs provided by

a transmission repair firm in the Detroit area. The following data show the actual number of miles driven for 50 vehicles at the time of transmission failure.

Q 2 a. Use appropriate descriptive statistics to summarize the transmission failure data

Q 2 b. Develop a 95% confidence interval for the mean number of miles driven until transmission failure for the population of automobiles with transmission failure. Provide a managerial interpretation of the estimate

Q 2 c. What other information would you like to gather to evaluate the transmission failure problem more fully.

3. **Case:** The Consumer Reports Restaurant Customer Satisfaction Survey is based upon 148,599 visits to full-service restaurant chains. Assume the following data are representative of the results reported. The variable Type indicates whether the restaurant is an Italian restaurant or a seafood/steakhouse. Price indicates the average amount paid per person for dinner and drinks, minus the tip. Score reflects diners' overall satisfaction, with higher values indicating greater overall satisfaction. A score of 80 can be interpreted as very satisfied

Q 3 a. Develop the estimated regression equation to show how overall customer satisfaction is related to the independent variable average meal price.

Q 3 b. At the .05 level of significance, test whether the estimated regression equation developed in part (a) indicates a significant relationship between overall customer satisfaction and average meal price.

Interpret the results.

4. **Case:** The Costello Music Company has been in business for five years. During that time, sales of pianos increased from 12 units in the first year to 76 units in the most recent year. Fred, the firm's owner, wants to develop a forecast of piano sales for the coming year. The historical data for 5 years is given below

Q 4 a. Construct a time series plot. What type of pattern exists in the data?

Q 4 b. Develop the linear trend equation for the time series. What is the average increase in sales that the firm has been realizing per year? Forecast sales for years 6 and 7.

5. The Vintage Restaurant, is owned and operated by Karen. The restaurant just completed its third year of operation. Since opening her restaurant, Karen has sought to establish a reputation for the Vintage as a high-quality dining establishment that specializes in fresh seafood. Through the efforts of Karen and her staff, her restaurant has become one of the best and fastest growing restaurants on the island. To better plan for future growth of the restaurant, Karen needs to develop a system that will enable her to forecast food and beverage sales by month for up to one year in advance. Table below shows the value of food and beverage sales (\$1000s) for the first three years of operation

Q 5 a. A time series plot. Comment on the underlying pattern in the time series. Do analysis of the seasonality of the data.

Q 5 b. Using the dummy variable regression approach, forecast sales for January through December of the fourth and Fifth year

Mapping of Questions with Course Learning Outcome

Question Number	COs	Bloom's Taxonomy Level	Marks Allocated
Question 1a,1b	CO1	L3	4
Question 2a,2b, 3	CO2	L4	12
Question 4a,5	CO3	L4	12

Question 1c, 2c,4b	CO4	L5	12
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