

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM & ENERGY STUDIES
End Semester Examination (Online) – July, 2020

Program: MBA BA
Subject/Course: Business Analytics
Course Code: DSBA 7005

Semester: II
Max. Marks: 100
Duration: 3 Hours

IMPORTANT INSTRUCTIONS

1. The student must write his/her name and enrolment no. in the space designated above.
2. The questions have to be answered in excel.
3. After attempting the questions in this document, the student has to upload excel file on Blackboard.
4. Solve all the questions on the excel sheet and upload excel file after saving file with your sap-id.

		Marks	COs																																																							
Q.1	<p>In a recent report, the top five most-visited English-language web sites were google.com (GOOG), facebook.com (FB), youtube.com (YT), yahoo.com (YAH), and wikipedia.com (WIKI). The most-visited web sites for a sample of 10 Internet users are given in Sheet1: Websites.</p> <table border="1"> <thead> <tr> <th align="center" colspan="5">Preferred Show</th> </tr> </thead> <tbody> <tr><td align="center">YAH</td><td align="center">WIKI</td><td align="center">YT</td><td align="center">WIKI</td><td align="center">GOOG</td></tr> <tr><td align="center">YT</td><td align="center">YAH</td><td align="center">GOOG</td><td align="center">GOOG</td><td align="center">GOOG</td></tr> <tr><td align="center">WIKI</td><td align="center">GOOG</td><td align="center">YAH</td><td align="center">YAH</td><td align="center">YAH</td></tr> <tr><td align="center">YAH</td><td align="center">YT</td><td align="center">GOOG</td><td align="center">YT</td><td align="center">YAH</td></tr> <tr><td align="center">GOOG</td><td align="center">FB</td><td align="center">FB</td><td align="center">WIKI</td><td align="center">GOOG</td></tr> <tr><td align="center">GOOG</td><td align="center">GOOG</td><td align="center">FB</td><td align="center">FB</td><td align="center">WIKI</td></tr> <tr><td align="center">FB</td><td align="center">YAH</td><td align="center">YT</td><td align="center">YAH</td><td align="center">YAH</td></tr> <tr><td align="center">YT</td><td align="center">GOOG</td><td align="center">YAH</td><td align="center">FB</td><td align="center">FB</td></tr> <tr><td align="center">WIKI</td><td align="center">GOOG</td><td align="center">YAH</td><td align="center">WIKI</td><td align="center">WIKI</td></tr> <tr><td align="center">YAH</td><td align="center">YT</td><td align="center">GOOG</td><td align="center">GOOG</td><td align="center">WIKI</td></tr> </tbody> </table> <p>Based on the sample, what can be said about the browsing behavior of Internet users?</p>	Preferred Show					YAH	WIKI	YT	WIKI	GOOG	YT	YAH	GOOG	GOOG	GOOG	WIKI	GOOG	YAH	YAH	YAH	YAH	YT	GOOG	YT	YAH	GOOG	FB	FB	WIKI	GOOG	GOOG	GOOG	FB	FB	WIKI	FB	YAH	YT	YAH	YAH	YT	GOOG	YAH	FB	FB	WIKI	GOOG	YAH	WIKI	WIKI	YAH	YT	GOOG	GOOG	WIKI	20	CO2
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Q.2	<p>A sales manager is trying to determine appropriate sales performance bonuses for his team this year. The Sheet2: SalesBonuses contains the data relevant to determining the bonuses, but it is not easy to read and interpret.</p>	20	CO2																																																							

Salesperson	Total Sales (INR)	Average Performance Bonus Previous Years (INR)	Customer Accounts	Years with Company
Vineet Maindola	325000.78	12499.3452	124	14
Sanjay Johri	13678.21	239.9434	9	7
Gargee Yadav	452359.19	21987.2462	175	21
Louis Paulose	87423.91	7642.9011	28	3
S Rajesh	87654.21	1250.1393	21	4
Sangeeta Agarwal	234091.39	14567.9833	48	9
Rakesh Mishra	379401.94	27981.4432	121	12
Aparna Bhalla	31733.59	672.9111	7	1
Adesh Narain	127845.22	13322.9713	17	3

Help the sales manager make his decisions about bonuses by making the data presentable.

In a manufacturing process, the assembly line speed (feet per minute) was thought to affect the number of defective parts found during the inspection process. To test this theory, managers devised a situation in which the same batch of parts was inspected visually at a variety of line speeds. They collected the data as shown in **Sheet3: LineSpeed**.

Line Speed	Number of Defective Parts Found
20	21
20	19
40	15
30	16
60	14
40	17

- What is the relationship between line speed and the number of defective parts found?
- Use the data to develop an estimated regression equation that could be used to predict the number of defective parts found, given the line speed.
- What is the estimated regression model? Give proper justification.

Q.3

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Q.4

An association polls its members on their experiences with electronic trades handled by

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stockbrokers. As part of the survey, members were asked to rate their satisfaction with the trade price and the speed of execution, as well as provide an overall satisfaction rating. Possible responses (scores) were no opinion (0), unsatisfied (1), somewhat satisfied (2), satisfied (3), and very satisfied (4). For each broker, summary scores were computed by computing a weighted average of the scores provided by each respondent. The survey results are in **Sheet4: Brokers**.

Brokerage	Satisfaction with Trade Price	Satisfaction with Speed of Execution	Overall Satisfaction with Electronic Trades
ShareKhan	3.4	3.4	3.5
ICICI Direct	3.2	3.3	3.4
HDFC Securities	3.1	3.4	3.9
IIFL	2.9	3.6	3.7
5Paisa	2.9	3.2	2.9
Motilal Oswal	2.5	3.2	2.7
Zerodha	2.6	3.8	2.8
Angel Broking	2.4	3.8	3.6
Trade Smart Online	2.6	2.6	2.6
Kotak Securities	2.3	2.7	2.3
India Bulls Securities	3.7	4.0	4.0
Axis Direct	2.5	2.5	2.5
Karvy Online	3.0	3.0	4.0
SBI Capital	4.0	1.0	2.0

- A. Develop an estimated regression equation using trade price and speed of execution to predict overall satisfaction with the broker. Interpret the estimated regression parameters. Are the relationships indicated by these estimates what you would expect?
- B. Edelweiss Investments has developed a new electronic trading system and would like to predict overall customer satisfaction assuming they can provide satisfactory service levels (3) for both trade price and speed of execution. Use the estimated regression equation developed to predict overall satisfaction level for Edelweiss if they can achieve these performance levels.

Q.5

A sample containing years to maturity and (percent) yield for 40 corporate bonds is contained in **Sheet5: CorporateBonds**.

Company Ticker	Years	Yield
GE	1	0.767
MS	1	1.816

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WFC	1.25	0.797
TOTAL	1.75	1.378
TOTAL	3.25	1.748
GS	3.75	3.558
MS	4	4.413
JPM	4.25	2.31
C	4.75	3.332
RABOBK	4.75	2.805
TOTAL	5	2.069
MS	5	4.739
AXP	5	2.181
MTNA	5	4.366
BAC	5	3.699
VOD	5	1.855
SHBASS	5	2.861
AIG	5	3.452
HCN	7	4.184
MS	9.25	5.798
GS	9.25	5.365
GE	9.5	3.778
GS	9.75	5.367
C	9.75	4.414
BAC	9.75	4.949
RABOBK	9.75	4.203
WFC	10	3.682
TOTAL	10	3.27
MTNA	10	6.046
LNC	10	4.163
FCX	10	4.03
NEM	10	3.866
PAA	10.25	3.856
HSBC	12	4.079
GS	25.5	6.913
C	25.75	8.204
GE	26	5.13
GE	26.75	5.138
T	28.5	4.93
BAC	29.75	5.903

	<p>A. Develop a regression equation for the data using years to maturity as the independent variable. Does a simple linear regression model appear to be appropriate, explain?</p> <p>B. If a linear model does not explain the relationship, develop an alternate model to explain the relationship. How would you interpret this alternate model?</p> <p>C. What other independent variables could you include in your regression model to explain more variation in yield?</p>		
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ANSWERS