



**Institute of Management
JK LakshmiPat University
Jaipur**



END TERM EXAMINATION 2015

BBA(FT) Sem-I
MM: 50 Marks

Course: Introduction to Statistics
Time: 3 Hours
Subject code: BBA 103

Instructions: Attempt any three questions from Section A. Section B is compulsory

**Section A
(Attempt any 3)**

Q1. A) A management consulting firm has 4 types of professionals on its staff: managing consultants, senior associates, field staff and office staff. Average rates charged to consulting clients for the work of each of these professional categories are Rs 3150/ hour, Rs 1680/ hour, Rs 1260/ hour and Rs 630/ hour respectively. Office records indicate the following number of hours billed last year in each category: 8,000; 14,000; 24,000 and 35,000, respectively. If the firm is trying to come up with an average billing rate for estimating client charges for next year, what would you suggest they do and what do you think is an appropriate rate. (5 Marks)

B) The following data show the yearly salaries of a sample of MBA graduates.

MBA Student	A	B	C	D	E	F	G	H
Salary (in \$1,000)	78	87	80	100	104	88	82	85

- Compute the standard deviation and give your answer in dollars.
- Compute the 75th percentile and give your answer in dollars. *Fully explain what the value that you have determined indicates.*

(5 Marks)

Q2. A) Descriptive statistics for the closing stock prices of two companies for several trading periods are shown below.

<i>Baba, Inc</i>	
Mean	4.00
Standard Error	0.11
Median	3.92
Mode	4.19
Standard Deviation	1.12
Sample Variance	1.25
Kurtosis	-1.15
Skewness	0.08
Range	3.95
Minimum	2.03
Maximum	5.98
Sum	436.32
Count	109

<i>Maman, Inc.</i>	
Mean	15.91
Standard Error	0.29
Median	16.59
Mode	15.58
Standard Deviation	3.21
Sample Variance	10.31
Kurtosis	3.52
Skewness	-2.09
Range	13.45
Minimum	5.55
Maximum	18.99
Sum	1972.61
Count	124

- Which company's stock price has a more *dispersed distribution*? Explain. Show your complete work and support your answer.
- Compare the Skewness' of the two and explain what is indicated.

(5 Marks)

B) The following observations are given for two variables

Y	5	8	18	20	22	30	10	7
X	2	12	3	6	11	19	18	9

- Compute and interpret the sample covariance for the above data
- Compute and interpret the sample correlation coefficient for the above data

(5 Marks)

Q3. A) The SAT scores of a sample of business school students and their genders are shown below.

Gender	SAT Scores			Total
	Less than 20	20 up to 25	25 and more	
Female	24	168	48	240
Male	40	96	24	160
Total	64	264	72	400

- Compute row percentages and comment on any relationship that may exist between SAT scores and gender of the individuals.
- Compute column percentages.

(5 Marks)

- B) The following data set shows the number of hours of sick leave that some of the employees of Bastien's, Inc. have taken during the first quarter of the year (rounded to the nearest hour).

19	22	27	24	28	12
23	47	11	55	25	42
36	25	34	16	45	49
12	20	28	29	21	10
59	39	48	32	40	31

- Develop a cumulative frequency distribution. (Let the width of your classes be 10 units and start your first class as 10 - 19.)
- How many employees have taken less than 40 hours of sick leave?

(5 Marks)

Q4. Following data were collected during a study of consumer buying patterns:

Observation	1	2	3	4	5	6	7	8	9	10	11	12	13
X	15	25	40	32	51	47	30	18	14	15	22	24	33
Y	74	80	84	81	96	95	83	78	70	72	85	88	90

- Obtain a linear regression line for the data (7 Marks)
- Using the above equation predict the value of y for x =49 (3 Marks)

Q5. A) The following information regarding the ten richest Americans was reported in a recent issue of *Forbes*.

Name	Ranking	Worth (\$Billions)	Age	Marital Status	Source
Gates, William	1	59.0	51	married	Microsoft
Buffett, Warren	2	52.0	77	married	Berkshire Hathaway
Adelson, Sheldon	3	28.0	74	married	casinos, hotels
Ellison, L. J.	4	26.0	63	married	Oracle
Brin, Sergey	5	18.5	34	married	Google
Page, Larry	5	18.5	34	single	Google
Kerkorian, Kirk	7	18.0	90	divorced	investments, casinos
Dell, Michael	8	17.2	42	married	Dell
Koch, Charles	9	17.0	71	married	oil, commodities
Koch, David	9	17.0	67	married	oil, commodities

- How many elements are in the above data set?
- How many variables are in this data set?
- How many observations are in this data set?
- Which variables are categorical and which are quantitative?



e. What measurement scale is used for each variable?

(5 marks)

B) A student calculates the value of r as .7 when the value of n is 5 and concludes that r is highly significant. Is he correct? Also calculate the interval estimates for population correlation coefficient.

(5 Marks)

Section B

Q6 A) A listing of 46 mutual funds and their 12-month total return percentage is shown in Table below:

Mutual Fund	Return (%)	Mutual Fund	Return (%)
Alger Capital Appreciation	23.5	Nations Small Company	21.4
Alger Large Cap Growth	22.8	Nations Small Cap Index	24.5
Alger Mid Cap Growth	38.3	Nations Strategic Growth	10.4
Alger Small Cap	41.3	Nations Value Inv	10.8
Alliance Bernstein Technology	40.6	One Group Diversified Equity	10.0
Federated American Leaders	15.6	One Group Diversified Int'l	10.9
Federated Capital Appreciation	12.4	One Group Diversified Mid Cap	15.1
Federated Equity-Income	11.5	One Group Equity Income	6.6
Federated Kaufmann	33.3	One Group Int'l Equity Index	13.2
Federated Max-Cap Index	16.0	One Group Large Cap Growth	13.6
Federated Stock	16.9	One Group Large Cap Value	12.8
Janus Adviser Int'l Growth	10.3	One Group Mid Cap Growth	18.7
Janus Adviser Worldwide	3.4	One Group Mid Cap Value	11.4
Janus Enterprise	24.2	One Group Small Cap Growth	23.6
Janus High-Yield	12.1	PBHG Growth	27.3
Janus Mercury	20.6	Putnam Europe Equity	20.4
Janus Overseas	11.9	Putnam Int'l Capital Opportunity	36.6
Janus Worldwide	4.1	Putnam International	21.5

		Equity	
Nations Convertible Securities	13.6	Putnam Int'l New Opportunity	26.3
Nations Int'l Equity	10.7	Strong Advisor Mid Cap Growth	23.7
Nations LargeCap Enhd. Core	13.2	Strong Growth 20	11.7
Nations LargeCap Index	13.5	Strong Growth Inv	23.2
Nation MidCap Index	19.5	Strong Large Cap Growth	14.5

- What are the mean and median return percentages for these mutual funds?
- What are the first and third quartiles?
- Do the data contain any outliers? Show a box plot. (12 Marks)

B) A pickle manufacturer uses different varieties of mangoes for his mango pickles. Two judges ranked his pickle as follows:

Pickle code	A	B	C	D	E	F	G	H
Rank by Judge-1	5	3	1	6	2	3	8	7
Rank by Judge-2	3	4	1	8	2	5	5	5

Calculate rank correlation coefficient

(4 Marks)

C) Consider the following distribution table

	A	B
Mean	100	90
Median	90	80
SD	10	10

- Both A and B have same degree of variation. True or False? Comment with reasons
- Both A and B have same degree of skewness. True / False? Comment with reasons (4 Marks)

