



Institute of Management
JK Lakshmipat University
Jaipur



END TERM EXAMINATION 2015

B. Com (FT) Sem-I
M: 50 Marks

Course: Fundamental of Statistics
Time: 3 Hours
Subject code: BCH 104

Instructions: Attempt any three questions from Section A. Section B is compulsory. All questions in section A carries equal marks ($10 \times 3 = 30$ Marks)

Section A

Q1. A) Differentiate between Interval scale and Ratio scale by taking two appropriate examples (5 Marks)

B) A survey of 131 investment managers in *Barron's* Big Money poll revealed the following:

- 43% of managers classified themselves as bullish or very bullish on the stock market.
- The average expected return over the next 12 months for equities was 11.2%.
- 21% selected health care as the sector most likely to lead the market in the next 12 months.
- When asked to estimate how long it would take for technology and telecom stocks to resume sustainable growth, the managers' average response was 2.5 years.
 - i. Cite two descriptive statistics.
 - ii. Make an inference about the population of all investment managers concerning the average return expected on equities over the next 12 months.

(5 Marks)

Q2. A) In automobile mileage and gasoline-consumption testing, 13 automobiles were road tested for 300 miles in both city and highway driving conditions. The following data were recorded for miles-per-gallon performance.

City	16.2	16.7	15.9	14.4	13.2	15.3	16.8	16	16.1	15.3	15.2	15.3	16.2
Highway	19.4	20.6	18.3	18.6	19.2	17.4	17.2	18.6	19	21.1	19.4	18.5	18.7

Use the mean, median, and mode to make a statement about the difference in performance for city and highway driving. (5 Marks)

- B) How do grocery costs compare across the country? Using a market basket of 10 items including meat, milk, bread, eggs, coffee, potatoes, cereal, and orange juice, *Where to retire* magazine calculated the cost of the market basket in six cities and in six retirement areas across the country (*Where to Retire*, November/December 2003). The data with market basket cost to the nearest dollar are as follows:

City	Cost	Retirement	Area Cost
Buffalo, NY	\$33	Biloxi-Gulfport, MS	\$29
Des Moines, IA	27	Asheville, NC	32
Hartford, CT	32	Flagstaff, AZ	32
Los Angeles, CA	38	Hilton Head, SC	34
Miami, FL	36	Fort Myers, FL	34
Pittsburgh, PA	32	Santa Fe, NM	31

Compute the mean, variance, and standard deviation for the sample of cities and the sample of retirement areas.

(5 Marks)

- Q3. The Dow Jones Industrial Average (DJIA) and the Standard & Poor's 500 Index (S&P 500) are both used to measure the performance of the stock market. The DJIA is based on the price of stocks for 30 large companies; the S&P 500 is based on the price of stocks for 500 companies. If both the DJIA and S&P 500 measure the performance of the stock market, how are they correlated? The following data show the daily percent increase or daily percent decrease in the DJIA and S&P 500 for a sample of nine days over a three-month period (*The Wall Street Journal*, January 15 to March 10, 2006).

DJIA	.20	.82	-.99	.04	-.24	1.01	.30	.55	-.25
S&P 500	.24	.19	-.91	.08	-.33	.87	.36	.83	-.16

- A) Show a scatter diagram (3 Marks)
 B) Compute the sample correlation coefficient for the above data (4 Marks)
 C) Discuss the association between the DJIA and S&P 500. Do you need to check both before having a general idea about the daily stock market performance? (3 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

- a) Obtain a linear regression line for the data (7 Marks)
 b) Using the above equation predict the value of y for x = 41 (3 Marks)



Q5. The following frequency distribution shows the price per share of the 30 companies in the Dow Jones Industrial Average (*Barron's*, February 2, 2014).

Price per Share	\$0–4	\$10–19	\$20–29	\$30–39	\$40–49	\$50–59	\$60–69	\$70–79	\$80–89	\$90–99
Number of Companies	9	5	7	3	4	4	0	2	0	1

- A) Compute the mean price per share and the standard deviation of the price per share for the Dow Jones Industrial Average companies. (7 Marks)
- B) On January 16, 2011, the mean price per share was \$45.83 and the standard deviation was \$18.14. Comment on the changes in the price per share over the three-year period. (3 Marks)

Section B

Q6. A) Find Spearman's rank correlation coefficient from the following:

X	50	33	40	10	15	15	65	24	15	57
y	12	12	24	6	15	4	20	9	6	18

Also, discuss the merits and demerits of Spearman's rank correlation coefficient method. (7 Marks + 3 Marks)

B) Consider the following distribution table

	A	B
Mean	100	90
Median	90	80
SD	10	10

- a. Both A and B have same degree of variation. True or False? Comment with reasons (5 Marks)
- b. Both A and B have same degree of skewness. True / False? Comment with reasons (5 Marks)
- C) What are the merits and demerits of: Rank correlation method and Concurrent deviation method? (5 Marks)

