

**K. J. SOMAIYA INSTITUTE OF MANAGEMENT STUDIES AND RESEARCH,**  
**Vidyavihar, Mumbai- 400077**

**Program:PGDM Executive (Batch2016-17), Sem.-I**  
**Subject: Quantitative Techniques for Business Management**  
**(EndTerm Examination)**

Maximum Marks: 50

**Duration: 3 hours**

**Date: 9<sup>th</sup> Dec., 2016**

**Instructions**

- 1. All Questions are compulsory**

**QUESTION 1**

**15 Marks**

- (I) A student is taking multiple choice exam in which each questions has four choices. Assuming that she has no knowledge of the correct answer to any of the questions, she has decided on a strategy in which she will place four balls (marked A, B,C & D) into a box. She randomly selects one ball for each question and replaces the balls in the box. The marking of the ball will determine her answer to the questions. There are five multiple choice questions in the exam. What is the provability she will get
- Five questions correct?
  - At least four questions correct?
  - No questions correct?
- (II) In a survey conducted by the society for Human Resource Management, 68% of workers said that employers have the right to monitor their telephone use. Suppose that a random sample of 20 workers is selected, and they are asked if employers have the right to monitor telephone use. What is the probability,
- 5 or less of the workers agree?
  - 10 or less workers agree?
  - 15 or less of the workers agree?

**Question 2**

**10 Marks**

An investment broker reports that the yearly returns on common stocks are approximately normally distributed with a mean return of 12.4 percent and a standard deviation of 20.6 percent. On the other hand, the firm reports that the yearly return of 5.2 percent and a standard deviation of 8.6 percent. Find the probability that a randomly selected,

- a. Common stock will give a positive yearly return.
- b. Tax-free municipal bond will give a positive yearly return.
- c. Common stock will give more than a ten percent return.
- d. Tax-free municipal bond will give more than a 10 percent return.
- e. Common stock will give a loss of at least 10 percent.

**Question 3**

**15 marks**

a) Runzheimer Internationally publishes, results of studies on overseas business travel cost. Suppose as a part of one of these studies the following per dime travel accounts (in \$) are obtained for fourteen business travelers staying in Johannesburg, South Africa. Use this data to construct a 98% confidence interval to estimate the average per dime expense for business people travelling to Johannesburg. Assume per dime rates for any locale are approximately normally distributed.

142.59	148.48	159.63	171.93	146.90	168.87	141.94
159.09	156.32	142.49	129.28	151.56	132.87	178.34

b) According to the Stern marketing group nine out of ten professional women say that financial planning is more important today than it was five years ago. Where do these women go for help in financial planning? 47% use a financial advisor (broker, tax consultant, financial planner). 28% use return sources such as magazines, books and News papers. Suppose this figures were obtained by taking a sample of 560 professional women who said that financial planning is more important today than it was five years ago. Construct a 90% confidence interval for the proportion of professional women who use written sources.

**Question 4**

**10 marks**

An investor has \$900,000 to invest in the stock market. She is interested in developing a stock portfolio made up of IDBI, HDFC, AXIS and SBI. However, she does not know how much to invest in each one. She wants to maximize her return, but she would also like to minimize the risk. She has computed monthly returns for all four stocks during a 60-month period (Jan. 2001 to Dec. 2006). After some consideration, she narrowed her choices down to the following three. What should she do?

- a. Equal amount in each stock.
- b. IDBI: \$40,000, HDFC \$60,000, AXIS: 60,000, SBI: 80,000.

-----End of Paper-----