

**VPM's**  
**DR VN BRIMS, Thane**  
**Programme: PGDM (2017-19)**  
**PGDM Trimester I Examination September 2017**

<b>Subject</b>	<b>Quantitative Techniques - I</b>		
<b>Roll No.</b>		<b>Marks</b>	<b>60 Marks</b>
<b>Total No. of Questions</b>	<b>7</b>	<b>Duration</b>	<b>3 Hours</b>
<b>Total No. of printed pages</b>	<b>2</b>	<b>Date</b>	<b>25.09.2017</b>

**Note: Q1 is compulsory and solve any FOUR from the remaining SIX questions.**

**Q1) 20 Marks (Compulsory)**

Cost accountants often estimate overhead based on the level of production. At the Standard Knitting Company, they have collected information on the Overhead Expenses and Units produced at different plants, and to estimate a regression equation to predict the future overhead

Overhead(Y)	191	170	272	155	280	173	234	116	153	178
Units(X)	40	42	53	35	56	39	48	30	37	40

- i. Develop the regression equation for the cost accountants
- ii. Predict overhead when 50 units are produced
- iii. Calculate the Standard Error of Estimate

**Attempt Any FOUR from the Remaining SIX Questions**

**Q2) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

a) Coca Cola Company is studying the effect of its latest advertising campaign. People chosen at random were called and asked how many cans of Coca Cola they had purchased in the past week and how many Coca Cola advertisements they had either read or seen in the past week. The followings are the results

X (Number of ads)	3	7	4	2	0	4	1	2
Y ( cans purchased)	11	18	9	4	7	6	3	8

Calculate the correlation of coefficient and interpret the results

b) Construct a Probability distribution based on the following frequency distribution

Outcome	102	105	108	111	114	117
Frequency	10	20	45	15	20	15

Compute the expected value of the outcome

c) What is Hypothesis Testing? Discuss how to set Null and Alternative Hypothesis with examples.

**Q3) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

a) Discuss the use of Regression analysis in decision making

b) What are sources of sampling and non-sampling error and how to minimise it.

c) Talent, Ltd., a Hollywood casting company, is selecting a group of extras for a movie. The age of the first 20 men to be interview are

54	56	55	49	52	57	56	57	56	59
54	55	61	60	51	59	62	52	54	49

The director for the movie wants men whose ages are fairly tightly grouped 55 years. Being a statistics buff of sorts, the director suggests that a standard deviation of 3 years would be acceptable. Does this group of extras qualify?

**Q4) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

a) Define frequency distribution. Prepare a frequency distribution table with class intervals of 0-10, 10-20, etc from the following data

64	70	25	55	36	51	60	40	65	58
33	38	45	62	60	48	47	50	63	54
76	65	40	40	41	82	52	55	35	64
30	58	33	61	15	64	48	42	26	50
20	55	42	53	50	48	46	45	18	9

b) One bag contains 5 white and 3 black balls. Another bag contains 4 white and 6 black balls. If one ball is drawn from each bag, find the probability that both are white.

c) Write short notes on the followings with examples

- i. Mutually exclusive Events
- ii. Independent Events and dependent Events

**Q5) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

a) Write down the difference between Stratified Sampling and Cluster Sampling with examples.

b) Distinguish between Discrete Random Variables and Continuous Random variables

c) Short notes on

- I. Histogram
- II. Ogive

**Q6) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

a) The mean of a set of 50 observations was calculated as 42. It was discovered later that two items were recorded as 93 and 8 instead of correct 39 and 88. Rectify the error and find the correct mean value

b) Discuss the significance of correlation and different types of correlation.

c) Define probability Distribution and explain the Properties of Normal Distribution

**Q7) Any two from (a) or (b) or (c) ————— (5x2) = 10 Marks**

a) Explain the role of Quantitative Techniques in decision making

b) Calculate mean from the following distribution.

Class Intervals	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	7	32	56	106	180	164	86	44

c) Discuss various types of Measures of dispersion and its significance.