

**INSTITUTE OF MANAGEMENT****Pinnacle MBA-I Term****End Term Exam (Sep 2019)****ID2111: Foundation of Data Analysis**

Time: 2.0 Hours

Max Marks: 60

Instructions: All questions are compulsory. Statistical tables shall be provided on request.

1. Screenshot of Descriptive Analysis run on indicated variables is as shown below. Comment upon the central tendency, dispersion and shape of the distributions. Also, sketch rough histogram from the available information. 10 marks

	A	B	C		A	B	C
1	<i>income</i>			1	<i>age</i>		
2				2			
3	Mean	69.4748438		3	Mean	42.0585938	
4	Standard Error	0.98398205		4	Standard Error	0.15361895	
5	Median	45		5	Median	41	
6	Mode	25		6	Mode	39	
7	Standard Deviation	78.7185637		7	Standard Deviation	12.2895157	
8	Sample Variance	6196.61228		8	Sample Variance	151.032197	
9	Kurtosis	33.8766646		9	Kurtosis	-0.60203728	
10	Skewness	4.5127542		10	Skewness	0.29912707	
11	Range	1107		11	Range	59	
12	Minimum	9		12	Minimum	18	
13	Maximum	1116		13	Maximum	77	
14	Sum	444639		14	Sum	269175	
15	Count	6400		15	Count	6400	

2. Fill in the blanks: 5 marks

- For two distributions whose means are comparable, _____ can be used to compare their variability. However, when means are incomparable, _____ should be used for the same.
- Distribution of age of people attending a rock concert is likely to be _____ skewed.
- Distribution of marks obtained by a class of students who are all very bright and intelligent is likely to be _____ skewed.
- In a box plot, if the upper whisker is longer than the lower whisker, the data set is _____ skewed.

3. Frequency distribution of weight of 150 people is as given below. Construct a histogram and infer what you can see from the histogram that was not apparent from the frequency distribution. 5 marks

Class	Frequency	Class	Frequency
75-89	10	150-164	23
90-104	11	165-179	9
105-119	23	180-194	9
120-134	26	195-209	6
135-149	31	210-224	2

4. Retail India marks up its merchandise 35 percent above the cost of its latest additions to stock. Until 4 months ago, one of the product was being received at Rs. 300 per unit. During the last four months, Retail India has received 4 monthly shipments of this product at unit costs of Rs. 275, Rs.250, Rs. 240 and Rs. 225. At what average rate per month has Retail India's price for this unit been decreasing during these four months? 5 marks
5. You are given the task to create data visualizations through appropriate charts for following scenarios. Explain which type of chart you will use in each scenario along with your reasoning. Also, identify which variable will be plotted on which coordinate axis and give a rough sketch of the chart. 5 marks
- Percentage of marks obtained by five students in four courses.
 - Percentage of marks obtained by 500 students in a course.
 - Relationship between Advertisement Expenditure and Sales Turnover of 100 firms.
 - Taxes received by Government from various heads/sectors.
 - Sales figures of three variants of a car for four quarters of a financial year.
6. Out of a class of 50 students, 30 students drink tea, 20 drink coffee and 10 drink both tea and coffee. Find the no. of students who drink a) Tea only b) coffee only c) Neither Tea nor coffee 6 marks
7. In a box containing 10 balls three are colored and dotted, one is colored and striped, two are grey and dotted while four are gray and striped. If a ball is drawn at random, then compute the following probabilities: 4 marks
- Drawing a dotted ball, given that it is colored.
 - Drawing a gray ball, given that it is striped.
 - Drawing a striped ball, given that it is gray.
 - Drawing a colored ball, given that it is dotted.
8. In a campus-wide poll of randomly selected students, the probability that they will join the corporate world through campus placement is 0.55, the probability that they will pursue further education is 0.30 and the probability that they will join their family business is 0.15. Assuming that 10 marks

these probabilities are accurate answer the following questions that pertain to a randomly chosen group of 10 students.

- a) What is the probability that four are going to pursue higher education?
 - b) What is the probability that none opt for campus placement?
 - c) What is the probability that two are going to join their family business?
 - d) What is the probability that at least eight are going to pursue higher education?
9. A self-administered course on Data Analytics was undertaken by a batch of students who completed the programme in different no. of hours. Time taken to complete the programme was found to be a normal variate with a mean of 50 hours and a standard deviation of 10 hours. If a student is chosen at random from the batch, then find the probabilities that he/she completed the program in : 10 marks
- a) Between 50 and 65 hours
 - b) More than 70 hours
 - c) Between 55 and 65 hours
 - d) Less than 58 hours
 - e) Between 42 and 57 hours

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