Roll No.													

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF MANAGEMENT

MID TERM EXAMINATIONS

Semester: Odd Sem. 2019-20
Course Code: MGT 213
Course Name: BUSINESS STATISTICS
Program & Sem: MBA & I

Date: 17.10.2019
Time: 9:30AM to 11:00AM
Max Marks: 40
Weightage: 20%

Instructions:

i. Scientific calculators can be used
ii. Graph sheets will be provided on request

Part A [Memory Recall Questions]

Answer all the Questions. Each Question carries two marks. (3Qx2M=6M)

1. Define a variable and give an example. (C.O.NO.1) [Knowledge]
2. What are inclusive type of class intervals? Give an example. (C.O.NO.1) [Knowledge]
3. Mention any two merits of median. (C.O.NO.2) [Knowledge]

Part B [Thought Provoking Questions]

Answer all the Questions. Each Question carries five marks. (4Qx5M=20M)

4. Mention the different measurement scales and briefly explain any two of them with suitable examples. (C.O.NO.1) [Comprehension]
5. The following table shows the frequency distribution of the lifetimes of 400 radio tubes tested at L&M Company. Draw less than cumulative frequency curve and locate the median. (C.O.NO.1) [Comprehension]

Lifetime	300-400	400-500	500-600	600-700	700-800	800-900	900-1000	1000-1100
Freq :	14	46	58	76	70	64	50	22

6. For the following frequency distribution regarding the weights (in pounds) of 100 persons, compute the mode. (C.O.NO.1) [Comprehension]

Weight	130-140	140-150	150-160	160-170	170-180	180-190
No. of persons	10	20	30	20	10	10

7. The number of telephone calls received in 245 successive one-minute intervals at an exchange are shown in the following frequency distribution. Compute P_{30} and P_{60}. (C.O.NO.2) [Comprehension]

No of calls	: 0	1	2	3	4	5	6	7
No of intervals	:14	21	25	43	51	40	39	12

Part C [Problem Solving Questions]

Answer the Question. The Question carries fourteen marks. (1Qx14M=14M)

8. The manager of the Cottonwood Grille recently selected a random sample of 18 customers and kept track of how long the customers were required to wait from the time they arrived at the restaurant until they were actually served dinner. This study resulted from several complaints the manager had received from customers saying that their wait time was unduly long and that it appeared that the objective was to keep people waiting in the lounge for as long as possible to increase the lounge business. The following data were recorded, with time measured in minutes: 34 24 43 56 74 20 19 33 55 43 54 34 27 34 36 24 54 39

(C.O.NO.2) [Application]

a. Compute the mean waiting time for this sample of customers. [3M]

b. Compute the median waiting time for this sample of customers. [3M]

c. Compute the standard deviation of waiting time for this sample of customers. [5M]

d. The manager is considering giving a complementary drink to customers whose waiting time is longer than the third quartile. Determine the minimum number of minutes a customer would have to wait in order to receive a complementary drink. [3M]

SCHOOL OF MANAGEMENT

Semester: Odd Sem 2019-20
Course Code: MGT 213
Course Name: Business Statistics
Program & Sem: MBA & SEM I

Date: 17.10.2019
Time: 9:30 – 11:00
Max Marks: 40
Weightage: 20

Extract of question distribution [outcome wise & level wise]

Q.NO.	C.O.NO (%age of CO)	Unit/Module Number/Unit /Module Title	Memory recall type [Marks allotted] Bloom's Levels	Thought provoking type [Marks allotted] Bloom's Levels	Problem Solving type [Marks allotted]	Total Marks
			K	C	A	
1	1 (70%)	**Module:1 Data Presentation**	2			2
2	1(70%)	**Module: 1 Data Presentation**	2			2
3	2 (60%)	**Module: 2 Measures of Central Tendency and variation**	2			2
4	1(70%)	**Module: 1 Data Presentation**		5		5
5	2 (60%)	**Module: 2 Measures of Central Tendency and variation**		5		5
6	2(60%)	**Module: 2 Measures of**		5		5

		Central Tendency and variation				
7	2 (60%)	**Module: 2 Measures of Central Tendency and variation**		5		5
8	2 (60%)	**Module: 2 Measures of Central Tendency and variation**			14	14
	Total Marks		6	20	14	40

K =Knowledge Level C = Comprehension Level, A = Application Level

Note: While setting all types of questions the general guideline is that about 60%

Of the questions must be such that even a below average students must be able to attempt, About 20% of the questions must be such that only above average students must be able to attempt and finally 20% of the questions must be such that only the bright students must be able to attempt.

I hereby certify that all the questions are set as per the above guidelines. [Name of faculty]

Reviewer's Comments:

Annexure- II: Format of Answer Scheme

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

SCHOOL OF MANAGEMENT

SOLUTION

Semester: Odd Sem 2019-20

Course Code: MGT 213

Course Name: Business Statistics

Program & Sem: MBA & SEM I

Date: 17.10.2019

Time: 9:30 – 11:00

Max Marks: 40

Weightage: 20%

Part A

(3Q x 2M = 6Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
1	Definition and example	Definition 1 mark Example 1 mark	5
2	Explanation and example	Explanation 1 mark Example 1 mark	5
3	Two merits	Two merits 1 mark each	5

Part B

(4Q x 5M = 20Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
4	Names of measurement scales and explanation of any two of them	List of measurement scales 1 mark Explanation of two measurement scales 2 marks each	10
5	Less than cumulative frequency curve and median =708.5	Less than cumulative frequency 1 mark Graph 3 marks Median 1 mark	10
6	Mode =155	Formula 1 mark Calculations 3 marks Mode value 1 mark	10
7	$P_{30} = 3$ $P_{60} = 4$	Less than cumulative frequency =1 mark P_{30} formula 1 mark and answer 1 mark P_{60} formula 1 mark and answer 1 mark	10

Part C

(1Q x 14M =14 Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
8	Mean =39.05 Median = 35 SD = 14.38 3^{rd} quartile = 54 54 minutes	Mean – formula 1 mark calculations 2 marks Median – formula 1 mark calculations 2 marks SD – formula 1 mark calculations 4 marks 3^{rd} quartile – formula 1 mark calculations 2 marks	35

Roll No.													

PRESIDENCY UNIVERSITY
BENGALURU

SEC: F TO K

SCHOOL OF MANAGEMENT

SET A

MID TERM EXAMINATIONS

Sem & AY: Odd Sem 2019-20
Course Code: MGT 213
Course Name: BUSINESS STATISTICS
Program & Sem: MBA & I

Date: 16.11.2019
Time: 9.30 AM to 11.00 AM
Max Marks: 40
Weightage: 20%

Instructions:

(i) While solving questions, you need to write down the necessary formula/formulae indicating the variables under consideration.

Part A [Memory Recall Questions]

Answer all the Questions. Each Question carries two marks (3Qx2M=6M)

1. What is observation in statistics? Give one example. (C.O.NO.1) [Knowledge]
2. What is categorical variable? Give example. (C.O.NO.1) [Knowledge]
3. What is inclusive class intervals? Give example. (C.O.NO.1) [Knowledge]

Part B [Thought Provoking Questions]

Answer all the Questions. Each Question carries five marks. (4Qx5M=20M)

4. What are the different types of measurement scale used in statistics? Give examples. (C.O.NO.1) [Comprehension]
5. A doctor's office staff studied the waiting times for patients who arrive at the office with a request for emergency service. The following data with waiting times in minutes were collected over a one-month period:
   2, 5, 10, 12, 4, 6, 6, 5, 17, 11, 8, 9, 12, 21, 6, 8, 7, 13, 18, 3
   Use classes of 0-4, 5-9, and so on in the following:
   (a) Show the frequency distribution
   (b) What proportion of patients needing emergency service wait 9 minutes or less?
   (C.O.NO.1) [Comprehension]

6. Draw histogram for the following frequency distribution:

Class Intervals	0-500	500-1000	1000-2500	2500-3500	3500-4500
Frequency	3	42	288	150	51

(C.O.NO.2) [Comprehension]

7. Find out the arithmetic mean from the following frequency distribution

x	Frequency
4	12
5	10
12	3
20	8

(C.O. NO.2) [Comprehension]

Part C [Problem Solving Questions]

Answer the Question. The Question carries fourteen marks. (1Qx14M=14M)

8. The Hillcrest Golf and Country Club manager selected a random sample of the members and recorded the number of rounds of golf they played last season. The reason for his interest in this data is that the club is thinking of applying a discount to members who golf more than a specified number of rounds per year. The sample of eight people produced the following number of rounds played: 13 32 12 9 16 17 16 12

   (a) Compute the mean for these sample data.

   (b) Compute the median for these sample data.

   (c) Compute the mode for these sample data.

   (d) Note that one person in the sample played 32 rounds. What effect, if any, does this large value have on each of the three measures of location? Discuss.

   (e) Given this sample data, suppose the manager wishes to give discounts to golfers in the top quartile. What should the minimum number of rounds played be to receive a discount? (C.O.NO.2) [Application]

SCHOOL OF MANAGEMENT

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

Semester: Odd Sem 2019-20

Course Code: MGT 213

Course Name: Business Statistics

Branch & Sem:

Date: 17.10.2019

Time: 1 hour 30 minutes

Max Marks: 40

Weightage: 20%

Extract of question distribution [outcome wise & level wise]

Q.NO.	C.O.NO (%age of CO)	Unit/Module Number/Unit /Module Title	Memory recall type [Marks allotted] Bloom's Levels	Thought provoking type [Marks allotted] Bloom's Levels	Problem Solving type [Marks allotted]	Total Marks
			K	C	A	
1	(CO-1)70%	1	2			2
2	(CO-1)70%	1	2			2
3	(CO-1)70%	1	2			2
4	(CO-1)70%	1		5		5
5	(CO-1)70%	1		5		5
6	(CO-2)70%	2		5		5
7	(CO-2)70%	2		5		5
8	(CO-2)70%	2			14	14

	Total Marks		6	20	14	40

K =Knowledge Level C = Comprehension Level, A = Application Level

Note: While setting all types of questions the general guideline is that about 60%

Of the questions must be such that even a below average students must be able to attempt, About 20% of the questions must be such that only above average students must be able to attempt and finally 20% of the questions must be such that only the bright students must be able to attempt.

I hereby certify that all the questions are set as per the above guidelines. [Anirban Kundu]

Reviewer's Comments:

Annexure- II: Format of Answer Scheme

GAIN MORE KNOWLEDGE REACH GREATER HEIGHTS

SCHOOL OF MANAGEMENT

SOLUTION

Semester: I

Course Code: MGT 213

Course Name:

Date: 17.10.2019

Time: 1 hour 30 minutes

Max Marks: 40

Weightage: 20%

Part A (Q x M = Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
1	Definition and any one example	Definition =1+ example=1	3 minutes
2	Definition and any one example	Definition =1+ example=1	3 minutes
3	Definition and one example	Definition =1+ example=1	3 minutes

Part B (Q x M = Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question

4	Definition of nominal scale, ordinal scale, interval scale and ratio scale with examples	Each definition carries 1 marksX 4 = 4 and example carries 1 marks (=4+1)	11 minutes
5	Arrange the data from lowest value to highest values and count the numbers; proportion= 60%	Q.no. 5.a = 4 + Q. no.5.b =1	11 minutes
6	Calculation: Area of each rectangle = width of class X frequency density = width of class X (class frequency/width of class)	Definition of area of each rectangle = 1+computing frequency table = 3 + drawing diagram = 1	12 minutes
7	AM= 7.09	Definition of AM = 1+ computation of mean = 4	8 minutes

Part C (Q x M = Marks)

Q No	**Solution**	**Scheme of Marking**	**Max. Time required for each Question**
8	Mean = 15.875, median = 14.5, mode =12; Mean will get affected by extreme value; but median and mode will get affected.	Q.no.8-a = 3+ Q.no.8b = 3+Q.no.8.c =1+Q.no-d =3 and Q.no.e=4	7 minute each for marks =3, 1 minute for marks =1, 9 minute for marks =4

Roll No.													

PRESIDENCY UNIVERSITY
BENGALURU

SEC: F TO K

SCHOOL OF MANAGEMENT

SET B

MID TERM EXAMINATIONS

Sem & AY: Odd Sem 2019-20
Course Code: MGT 213
Course Name: BUSINESS STATISTICS
Program & Sem: MBA & I

Date: 16.11.2019
Time: 9.30 AM to 11.00 AM
Max Marks: 40
Weightage: 20%

Instructions:

*(i) **Read the Questions carefully and answer all the questions.***

Part A [Memory Recall Questions]

Answer all the Questions. Each Question carries two marks. (3Qx2M=6M)

1. Define Discrete Variable with an example (C.O.NO.1) [Knowledge]

2. What is Range? (C.O.NO.1) [Knowledge]

3. What is meant by dispersion? List any two measures of dispersion.

(C.O.NO.1) [Knowledge]

Part B [Thought Provoking Questions]

Answer all the Questions. Each Question carries five marks. (4Qx5M=20M)

4. Consider the following data, which relates the age distribution of 1,000 workers in an Automobile industry. Compute the median age. (C.O.NO.2) [Comprehension]

Age(Years)	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
No of workers	120	125	180	160	150	140	100	25

5. The distribution of number of holding of shares of a manufacturing company by its shareholders is presented below. Obtain the mode from this data.
(C.O.NO.2) [Comprehension]

No of Months of Holding	0-2	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20
No of Shareholders ('000)	5	8	10	7	9	6	20	12	9	2

6. Delta Tiers employed 159 employees for a factory located at Kanpur. The Company's management is worried about the high absenteeism rate in the organization. Before taking any corrective action, the management has decided to calculate the percentile from the below information. Compute the P_{65}. (C.O.NO.2) [Comprehension]

Variations availed in a year	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of Employees	2	18	30	45	35	20	6	3

7. Explain the primary scales of measurement of data with examples.
(C.O.NO.1) [Knowledge]

Part C [Problem Solving Questions]

Answer the Question. The Question carries fourteen marks. (1Qx14M=14M)

8. Pfizer, Inc., a major U.S. pharmaceutical company, is developing a new drug aimed at reducing the pain associated with migraine headaches. Two drugs are currently under development. One consideration in the evaluation of the medication is how long the painkilling effects of the drugs last. A random sample of 12 tests for each drug revealed the following times (in minutes) until the effects of the drug were neutralized. The random samples are as follows: (C.O.NO.2) [Application]

Drug A	258	214	243	227	235	222	240	245	245	234	243	211
Drug B	219	283	291	277	258	273	289	260	286	265	284	266

a. Calculate the mean and standard deviation for each of the two drugs [10M].
b. Calculate the coefficient of variation for the two drugs. Based on the coefficient of variation, which drug has the greater variability in its time until the effect is neutralized? [4M].

SCHOOL OF MANAGEMENT

Semester: Odd Sem 2019-2020
Course Code: MGT 213
Course Name: Business Statistics
Program & Sem: MBA & I

Date: 17/10/2019, Thursday
Time: 9.30 AM to 11.00 AM
Max Marks: 40
Weightage: 20%

Extract of question distribution [outcome wise & level wise]

Q.NO.	C.O.NO (%age of CO)	Unit/Module Number/Unit /Module Title	Memory recall type [Marks allotted] Bloom's Levels	Thought provoking type [Marks allotted] Bloom's Levels	Problem Solving type [Marks allotted]	Total Marks
			K	C	A	
1		1	2			2
2		2	2			2
3		2	2			2
4		2		5		5
5		2		5		5
6		2		5		5
7		1	5			5
8		2			14	14
	Total Marks		6	20	14	40

K =Knowledge Level C = Comprehension Level, A = Application Level

Note: While setting all types of questions the general guideline is that about 60%

Of the questions must be such that even a below average students must be able to attempt, About 20% of the questions must be such that only above average students must be able to attempt and finally 20% of the questions must be such that only the bright students must be able to attempt.

I hereby certify that all the questions are set as per the above guidelines. [Dr. P. Srinivasan]

Reviewer's Comments:

Annexure- II: Format of Answer Scheme

GAIN MORE KNOWLEDGE REACH GREATER HEIGHTS

SCHOOL OF MANAGEMENT

SOLUTION

Semester: Odd Sem 2019-2020
Course Code: MGT 213
Course Name: Business Statistics
Program & Sem: MBA & I

Date: 17/10/2019, Thursday
Time: 9.30 AM to 11.00 AM
Max Marks: 40
Weightage: 20%

Part A

(3 x 2 = 6 Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
1	Discrete variable take values which are finite and distinct numbers. No of children in a family- Discrete	2	5 Mins.
2	Difference between the highest and the lowest value in the distribution	2	5 Mins.
3	Deviation from the mean. Range, Quartile, SD and CV	2	5 Mins.

Part B

(4 x 5 = 20 Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
4	Median = 37.34	5	**15 Mins**
5	Mode = 13.27	5	**15 Mins**
6	P_{65} Class = 103.35 P_{65} = 40.9257	5	**15 Mins**
7	Nominal (Gender), Ordinal (Ranking), Interval (Temperature) & Ratio (Sales)	5	**10 Mins**

Part C (1 x 14M = 14 Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
8	a) **Drug A:** **Mean 234.75** Population: Standard Deviation, σ: **13.329947486768** Sample: Standard Deviation, s: **13.922676075055** **Drug B:** **Mean:** **270.91666666667** Population: Standard Deviation, σ: **19.054563466238** Sample: Standard Deviation, s: **19.901842460771** b) CV Drug A for Population = **5.6783** CV Drug A for Sample = **5.9308**	10 4	**15 Mins** **5 Mins**

	CV Drug B for Population = **7.0333** CV Drug B for Sample = **7.3461** **Drug B has the greater variability**		

Roll No											

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF MANAGEMENT

END TERM FINAL EXAMINATION

Semester: Odd Semester: 2019 - 20
Course Code: MGT213
Course Name: Business Statistics
Program & Sem: MBA & I

Date: 31 Dec 2019
Time: 9.30 -12.30 PM
Max Marks: 100
Weightage: 50 %

Instructions:
(i) Read the all questions carefully and answer accordingly.
(ii) Carry the printout of Normal Distribution Table
(iii) Use scientific calculator

Part A [Memory Recall Questions]

Answer all the Questions. Each Question carries 05 marks. **(6Qx 5M= 30M)**

1. The following table gives the life times of 400 Neon lamps:

Life time (in hours)	Lamps
300-400	14
400-500	56
500-600	60
600-700	86
700-800	74
800-900	62
900-1000	48

(a) Represent the given information with the help of a histogram.
(b) How many lamps have a life time of more than 700 hours.

(C.O.No.1) [Comprehension]

2. Define ordinal scale of measurement. What is the level of measurement for each of the following variables?
(a) Fahrenheit scale of temperature
(b) Sales

(C.O.No.1) [Knowledge]

3. The following table gives the daily profits (in Rs) of 195 shops of a town. Calculate median.

Profits	50-60	60-70	70-80	80-90	90-100	100-110	110-120	120-130	130-140
No. of Shops	15	20	32	35	33	22	20	10	8

(C.O.No.2) [Application]

4. Define the following concepts.
a) Mutually exclusive event
b) Complementary event

(C.O.No.3) [Knowledge]

5. The day's sales figures (in Rs.) for the last 15 days at Nirula's ice-cream counter, arranged in ascending order of magnitude, are recorded as follows: 2000, 2000, 2500, 2500, 2500, 3500, 4000, 5300, 9000, 12500, 13500, 24500, 27100, 30900 and 41000. Compute Q3 for this sample data.

(C.O.No.2) [Knowledge]

6. What are the properties of Normal Distribution? Show how the distribution looks like?

(C.O.No.4) [Knowledge]

Part B [Thought Provoking Questions]

Answer all the Questions. Each Question carries 10 marks. (4Qx10M=40M)

7. The following are the values of exports of raw cotton (X) and the values of imports of manufactured cotton goods (Y) in crores of Rs. Compute Karl Pearson's coefficient of correlation between X & Y.

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

(C.O.No.2) [Comprehension]

8. Following are the observations of 40 workers working in a Whole sale center. Find the quartile deviation.

Wages (1,000s)	0-5	5-10	10-15	15-20	20-25	25-30
Number of Workers	4	6	3	8	12	7

(C.O.No.2) [Comprehension]

9. A random variable (X) has the following probability distribution. Find the missing probability in the following distribution and then compute mean and variance of the random variable X.

X	4	6	7	8
P(x)	0.2	--	0.3	0.2

(C.O.No.3) [Application]

10. A bag contains 20 balls, 3 are coloured red, 6 are coloured green, 4 are coloured blue, 2 are coloured white and 5 are coloured yellow. One ball is selected at random. Find the probabilities of the following events.

(a) the ball is either red or green

(b) the ball is not blue

(c) the ball is either red or white or blue. (Hint: Consider the complementary event)

(d) the balls are red and green

(C.O.No.3) [Comprehension]

Part C [Problem Solving Questions]

Answer bothl the Questions. Each Question carries 15 marks. (2Qx15M=30M)

11. For borrowers with good credit scores, the mean debt for revolving and installment accounts is $15,015 (BusinessWeek, March 20, 2006). Assume the standard deviation is $3540 and that debt amounts are normally distributed.

(a) What is the probability that the debt for a borrower with good credit is more than $18,000?

(b) What is the probability that the debt for a borrower with good credit is less than $10,000?

(c) What is the probability that the debt for a borrower with good credit is between $12,000 and $18,000?

(d) What is the probability that the debt for a borrower with good credit is no more than $14,000?

(C.O.No.2) [Application]

12.

(a) What do you understand by Coefficient of Variation? Discuss its importance in business problems.

(b) The weekly sales of two products A and B were recorded as given below.

Product A	59	75	27	63	27	28	56
Product B	150	200	125	310	330	250	225

Compute Coefficient of Variation and show which of the two has greater fluctuations in sales.

(C.O.No.3) [Application]

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

SCHOOL OF MANAGEMENT

END TERM FINAL EXAMINATION

Extract of question distribution [outcome wise & level wise]

Q.NO.	C.O.NO (% age of CO)	Unit/Module Number/Unit /Module Title	Memory recall type [Marks allotted] Bloom's Levels	Thought provoking type [Marks allotted] Bloom's Levels	Problem Solving type [Marks allotted]	Total Marks
			K	C	A	
1	1	1		5		5
2	1	1	5			5
3	2	2			5	5
4	3	3	5			5
5	2	2	5			5
6	4	4	5			5
7	2	2		10		10
8	2	2		10		10
9	4	4			10	10
10	3	3		10		10
11	2	2			15	15
12	3	4			15	15
	Total Marks		20	35	45	100

K =Knowledge Level C = Comprehension Level, A = Application Level

Note: While setting all types of questions the general guideline is that about 60% Of the questions must be such that even a below average students must be able to attempt, About 20% of the questions must be such that only above average students must be able to attempt and finally 20% of the questions must be such that only the bright students must be able to attempt.

I hereby certify that all the questions are set as per the above guidelines.

Faculty Signature:

Reviewer Commend:

Format of Answer Scheme

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

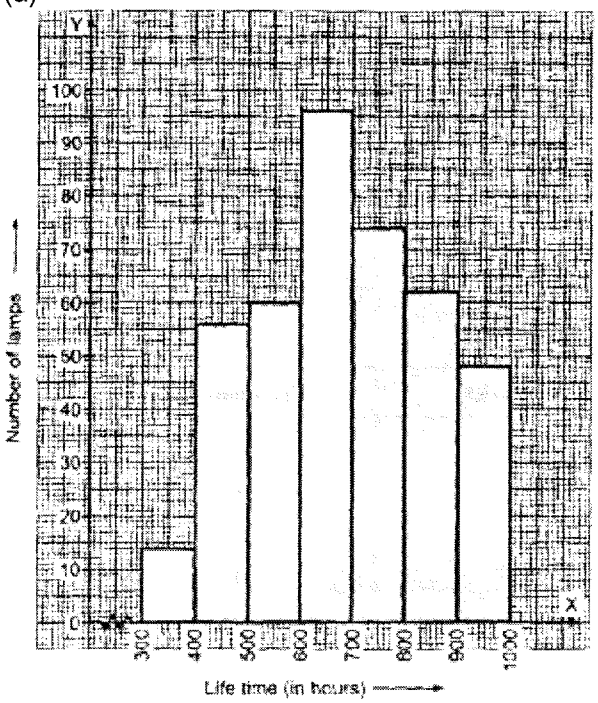
SCHOOL OF ENGINEERING

SOLUTION

Semester: Odd Sem. 2019-20
Course Code: MGT213
Course Name: BUSINESS STATISTICS
Program & Sem: MBA & I

Date: 31.12.2019
Time: 3 HRS
Max Marks: 100
Weightage: 50%

Part A (6Q x 5M = 30Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
1	(a)  (b) Number of lamps having life time more than 700 hours = 74 + 62 + 48 = 184.	2 3	10 Mins

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

SCHOOL OF MANAGEMENT

END TERM FINAL EXAMINATION

Extract of question distribution [outcome wise & level wise]

Q.NO.	C.O.NO (% age of CO)	Unit/Module Number/Unit /Module Title	Memory recall type [Marks allotted] Bloom's Levels	Thought provoking type [Marks allotted] Bloom's Levels	Problem Solving type [Marks allotted]	Total Marks
			K	C	A	
PART A Q. NO1 to Q. NO6	CO 01 CO 01 CO 02 CO 03 CO 02 CO 04	All the 4 modules	20 [5+5+5+5]	5 [5]	5 [5]	30
PART B Q.NO.7	CO 02	MODULE 02 Central Tendency & Variation	-	10	-	10
PART B Q.NO.8	CO 02	MODULE 02 Central Tendency & Variation	-	10	-	10
PART B Q.NO.9	CO 04	MODULE 04 Probability Distribution	-	-	10	10
PART B Q.NO.10	CO 03	MODULE 03 Probability	-	10	-	10

PART C Q.NO.11	CO 02	MODULE 02 Central Tendency & Variation	-	-	15	15
PARTC Q.NO.12	CO 03	MODULE 04 Probability Distribution	-	-	15	15
	Total Marks		20	35	45	100

K =Knowledge Level C = Comprehension Level, A = Application Level

C.O WISE MARKS DISTRIBUTION:

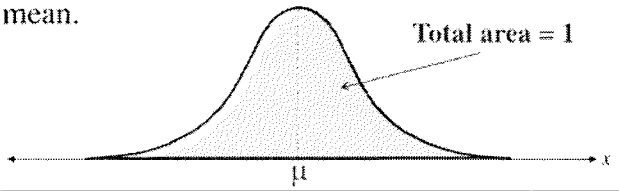
CO 01: 10 MARKS, CO 02: 45 MARKS, CO 03: 30 MARKS, CO 04:15 MARKS

Note: While setting all types of questions the general guideline is that about 60% of the questions must be such that even a below average students must be able to attempt, About 20% of the questions must be such that only above average students must be able to attempt and finally 20% of the questions must be such that only the bright students must be able to attempt.

I hereby certify that all the questions are set as per the above guidelines.

Faculty Signature:

Reviewer Commend:

2	An ordinal scale is a scale (of measurement) that uses labels to classify cases (measurements) into ordered classes. a) Interval b) Ratio	3 1 1	**10 Mins**
3	Rs.88.71	**5**	**10 Mins**
4	Mutually exclusive events, also called disjoint events, are two or more outcomes of an event that cannot occur at the same time. Complementary events are two outcomes of an event that are the only two possible outcomes.	**5**	**10 Mins**
5	Q3 = 12th item. Ans. 24500	**5**	**10 Mins**
6	**Properties of Normal Distributions** 1. The mean, median, and mode are equal. 2. The normal curve is bell-shaped and symmetric about the mean. 3. The total area under the curve is equal to one. 4. The normal curve approaches, but never touches the x-axis as it extends farther and farther away from the mean. 	**5**	**10 Mins**

Part B (4Q x 10M = 40 Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
7	r = 0.345. There is a positive relationship between x and y. The relationship is not very strong.	10	15 Mins
8	Quartile deviation (Q.D.) = 6.87	10	15 Mins
9	P(x) = 0.3 Mean=6.3 and Variance = 1.81	10	15 Mins
10	**Answer** Note that a ball has only one colour, designated by the letters R, G, B, W, Y. (a) $\mathrm{P}(R \cup G) = \mathrm{P}(R) + \mathrm{P}(G) = \frac{3}{20} + \frac{6}{20} = \frac{9}{20}$. (b) $\mathrm{P}(B') = 1 - \mathrm{P}(B) = 1 - \frac{4}{20} = \frac{16}{20} = \frac{4}{5}$. (c) The complementary event is $G \cup Y$, $\mathrm{P}(G \cup Y) = \frac{6}{20} + \frac{5}{20} = \frac{11}{20}$. Hence $\mathrm{P}(R \cup W \cup B) = 1 - \frac{11}{20} = \frac{9}{20}$	10	15 Mins

	d. 0.047 or 9/190		

Part C (2Q x 15M = 30Marks)

Q No	Solution	Scheme of Marking	Max. Time required for each Question
11	Given: $\mu = 15015$ $\sigma = 3540$ The z-value is the sample mean decreased by the population mean, divided by the standard deviation: $z = \frac{\overline{x} - \mu}{\sigma} = \frac{18000 - 15015}{3540} \approx 0.84$ $z = \frac{\overline{x} - \mu}{\sigma} = \frac{10000 - 15015}{3540} \approx -1.42$ $z = \frac{\overline{x} - \mu}{\sigma} = \frac{12000 - 15015}{3540} \approx -0.85$ $z = \frac{\overline{x} - \mu}{\sigma} = \frac{14000 - 15015}{3540} \approx -0.29$ Determine the corresponding probability using table 1 in the appendix: a. $P(z > 0.84) = 1 - P(z < 0.84) = 1 - 0.7995 = 0.2005$ b. $P(z < -1.42) = 0.0778$ c. $P(-0.85 < z < 0.84) = P(z < 0.84) - P(z < -0.85) = 0.7995 - 0.1977 = 0.6018$ d. $P(z < -0.29) = 0.3859$	15	30Mins
12	a. The coefficient of variation (CV) is the ratio of the standard deviation to the mean. The higher the coefficient of variation, the greater the level of dispersion around the mean. In finance, the coefficient of variation allows investors to determine how much volatility, or risk, is assumed in comparison to the amount of return expected from investments. The lower the ratio of the standard deviation to mean return, the better risk-return trade-off. b. Product A: μ=47.8571428571/ σ=18.5966861213/CV=0.419722439907 Product B: μ=227.142857143/ σ=70.804415866/CV=0.336693439906	5 10	30Mins

Roll No												

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF MANAGEMENT

END TERM FINAL EXAMINATION

Semester: Odd Semester: 2019 - 20
Course Code: MGT213
Course Name: Business Statistics
Program & Sem: MBA & I

Date: 31 Dec 2019
Time: 9.30 -12.30 PM
Max Marks: 100
Weightage: 50 %

Instructions:
(i) Read the all questions carefully and answer accordingly.
(ii) Carry the printout of Normal Distribution Table
(iii) Use scientific calculator

Part A [Memory Recall Questions]

Answer all the Questions. Each Question carries 05 marks. **(6Qx 5M= 30M)**

1. The following table gives the life times of 400 Neon lamps:

Life time (in hours)	Lamps
300-400	14
400-500	56
500-600	60
600-700	86
700-800	74
800-900	62
900-1000	48

(a) Represent the given information with the help of a histogram.
(b) How many lamps have a life time of more than 700 hours.

(C.O.No.1) [Comprehension]

2. Define ordinal scale of measurement. What is the level of measurement for each of the following variables?
(a) Fahrenheit scale of temperature
(b) Sales

(C.O.No.1) [Knowledge]

(C.O.No.3) [Application]

10. A bag contains 20 balls, 3 are coloured red, 6 are coloured green, 4 are coloured blue, 2 are coloured white and 5 are coloured yellow. One ball is selected at random. Find the probabilities of the following events.

(a) the ball is either red or green

(b) the ball is not blue

(c) the ball is either red or white or blue. (Hint: Consider the complementary event)

(d) the balls are red and green

(C.O.No.3) [Comprehension]

Part C [Problem Solving Questions]

Answer bothl the Questions. Each Question carries 15 marks. (2Qx15M=30M)

11. For borrowers with good credit scores, the mean debt for revolving and installment accounts is $15,015 (BusinessWeek, March 20, 2006). Assume the standard deviation is $3540 and that debt amounts are normally distributed.

(a) What is the probability that the debt for a borrower with good credit is more than $18,000?

(b) What is the probability that the debt for a borrower with good credit is less than $10,000?

(c) What is the probability that the debt for a borrower with good credit is between $12,000 and $18,000?

(d) What is the probability that the debt for a borrower with good credit is no more than $14,000?

(C.O.No.2) [Application]

12.

(a) What do you understand by Coefficient of Variation? Discuss its importance in business problems.

(b) The weekly sales of two products A and B were recorded as given below.

Product A	59	75	27	63	27	28	56
Product B	150	200	125	310	330	250	225

Compute Coefficient of Variation and show which of the two has greater fluctuations in sales.

(C.O.No.3) [Application]

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

SCHOOL OF MANAGEMENT

END TERM FINAL EXAMINATION

Extract of question distribution [outcome wise & level wise]

Q.NO.	C.O.NO (% age of CO)	Unit/Module Number/Unit /Module Title	Memory recall type [Marks allotted] Bloom's Levels	Thought provoking type [Marks allotted] Bloom's Levels	Problem Solving type [Marks allotted]	Total Marks
			K	C	A	
1	1	1		5		5
2	1	1	5			5
3	2	2			5	5
4	3	3	5			5
5	2	2	5			5
6	4	4	5			5
7	2	2		10		10
8	2	2		10		10
9	4	4			10	10
10	3	3		10		10
11	2	2			15	15
12	3	4			15	15
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			K	C	A	
PART A Q. NO1 to Q. NO6	CO 01 CO 01 CO 02 CO 03 CO 02 CO 04	All the 4 modules	20 [5+5+5+5]	5 [5]	5 [5]	30
PART B Q.NO.7	CO 02	MODULE 02 Central Tendency & Variation	-	10	-	10
PART B Q.NO.8	CO 02	MODULE 02 Central Tendency & Variation	-	10	-	10
PART B Q.NO.9	CO 04	MODULE 04 Probability Distribution	-	-	10	10
PART B Q.NO.10	CO 03	MODULE 03 Probability	-	10	-	10

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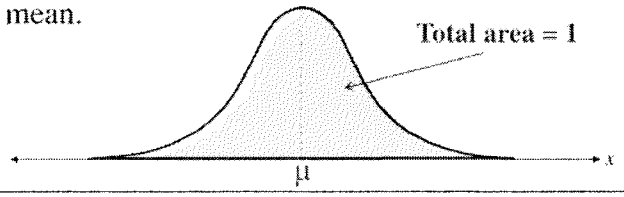
6	**Properties of Normal Distributions** 1. The mean, median, and mode are equal. 2. The normal curve is bell-shaped and symmetric about the mean. 3. The total area under the curve is equal to one. 4. The normal curve approaches, but never touches the x-axis as it extends farther and farther away from the mean. 	**5**	**10 Mins**

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