**Question Bank**

 **Major-IV Mathematics and Statistics for Managers**

 **Unit-I**

**2 Marks questions**

1. What is mean by Differentiation?

2. What is the concept of derivative?

3. What is the quotient rule of differentiation?

4. What is maximum value?

5. Define derivative of a function of one variable

**5 Marks Questions**

1. Mention the product rule of differentiation?

2. What are the uses of differentiation?

3. Explain the differentiation techniques?

4. Explain the quotient rule of differentiation?

5. What are the uses of differentiation?

6. Differentiate the following with respect to x

 X3-3X2+4X+3

 7. The demand curve for a monopolist is given by x = 100 - 4p

 i) Find the total revenue, average revenue and marginal revenue

 ii) At what value of x, the marginal revenue is equal to zero?

8.Find the derivatives of Y=7X4+2X3+4X2-6X+100

**10 Marks questions**

1. Differentiate (X2 -1) (X2 +2) with respect to x

2.Find the maximum and values of 2x3 -15x2 +24x-15

3. Find the maximum value and minimum value of 2X3+3X2-36X+10

4.Find the Maximum value and minimum values

 2X3-21X2+36X-20

5.If AR=28 and MR=18, ŋd=?

6.Find the maximum and minimum values of the cost function C=5+2X2-X3

**Unit-II**

**2 Marks questions**

1. What is mean by matrix?

2. What is mean by null or Zero matrix?

3. What is mean by square matrix?

4. What is mean by diagonal matrix?

5. What is mean by Diagonal matrix?

 6. What is mean by column matrix?

7. What is the additive identity?

**5 Marks Questions**

1. If $[\begin{matrix}2&3\end{matrix}]$ A= $[\begin{matrix}-1&4\end{matrix}]$, find A2

2.If

 A= $\left⌈\begin{matrix}2&3\\-1&4\end{matrix}\right⌉$ B= $\left[\begin{matrix}5&-2\\-1&6\end{matrix}\right]$ then verify Whether AB = BA

3. Addition of matrices

A=$\left[\begin{matrix}1&2\\-3&4\end{matrix}\right]$ B= $\left[\begin{matrix}5&-6\\7&8\end{matrix}\right]$

4. Multiple of matrices

A= $\left[\begin{matrix}0&0&1\\0&1&0\\0&0&1\end{matrix}\right]$ B= $\left[\begin{matrix}1&2&3\\4&5&6\\7&8&9\end{matrix}\right]$

5. If A=$\left⌈\begin{matrix}1&2&3\\3&4&5\end{matrix}\right⌉$ and B=$\left⌈\begin{matrix}2&-1&-2\\0&1&1\end{matrix}\right⌉$

 verify that A+B =B+A

 6.Verify that BTAT=(AB)T  when A=$ \left⌈\begin{matrix}1&1&2\\2&1&0\end{matrix}\right⌉ and B$=$\left⌈\begin{matrix}1&2\\2&0\\-1&1\end{matrix}\right⌉$

**10 Marks questions**

1.Find the inverse of A= $\left[\begin{matrix}4&0&2\\1&10&2\\3&9&1\end{matrix}\right]$

2. Find the inverse of A= $\left[\begin{matrix}4&5\\6&7\end{matrix}\right]$

3. Find the inverse of A =$\left⌈\begin{matrix}1&0&-1\\3&4&5\\0&-6&-7\end{matrix}\right⌉$

4. If A=$\left[\begin{matrix}2&1&0\\1&3&-2\end{matrix}\right]$ B=$\left[\begin{matrix}1&5\\7&3\\5&2\end{matrix}\right]$ Find AB and BA

5. If A=$\left[\begin{matrix}3&4\\1&1\\2&-1\end{matrix}\right]$ B=$\left[\begin{matrix}-2&1\\3&1\end{matrix}\right]$ verify that (AB)T=BTAT

6. Show that the Equations 2X-Y+Z=7,3X+y+Z=13, X+Y+Z=5 are consistent and have unique solution

 **Unit –III**

**2 Marks questions**

1. What is mean by statistics?

2. Define statistics?

3. Histogram?

4. What is mean by frequency polygon?

5. What is mean by Histogram?

6. What is mean by pie Diagram?

7. Define diagram

8. What is mean by classification?

9. What is mean by Tabulation?

**5 Marks Questions**

1. Mention the use of statistics in in different fields

2. State the objectives of statistics?

3. Draw the Graph and frequency curve for following data

 Wages on rupees: 40-50 50-60 60-70 70-80 80-90 90-100

 No.of workers: 36 87 121 154 133 95

 4. Draw a angular pie diagram from the following details

Head of the expenditure Food Clothing Education Medical Others

Expenditure in rupee 210 130 100 70 50

5.What is mean by statistics?wat are the nature of statistics?

6. Draw a histogram and frequency polygon

|  |  |
| --- | --- |
| SizeFrequency | 30-40 40-50 50-60 60-70 70-803 5 12 8 4 |

1. What are the parts of a table?
2. Draw a frequency curve for the following data

 Wages on Rs 40-50 50-60 60-70 70-80 80-90 90-100

Numbers of workers 36 87 121 154 133 95

1. Draw the pie diagram for the following details

 Head of the expenditure: Food clothing education medical others

 Expenditure in Rs 210 130 100 70 50

10.What are the main objectives of classification?

11.Explain four types of classification?

12.Distinguish between Graphs and Diagrams?

**10 Marks questions**

1. Evaluate the importance of statistics?

2. Describe about various types of diagrams?

3. What is diagram? What are the types of diagrams?

4.. Find the Mean, Median and mode

|  |  |
| --- | --- |
| Interval | 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-100 |
| Frequency | 4 14 20 51 32 17 6 4 |

5. Calculate the simple average and the weighted average of the following data and account for the difference in the two averages

 Items : 68 85 101 102 108 110 112 113 124 128

 Weights: 1 45 31 1 11 7 23 17 14 14

6. Evaluate the scope and uses of statistics

 **Unit –IV**

**2 marks questions**

1. What is the formula used to calculate mean under assumed mean method?

2. What is mean by measures of central tendency?

3. What is mean by measures of dispersion?

4. What is mean by assumed mean method?

5. What is mean by Arithmetic mean?

5. Write the formula for calculating arithmetic mean by short cut method?

6. What is mean by quartile deviation?

7.What is mean by co efficient of variation?

**5marks Questions**

1.Calculate the median from the subsequent data?

 Marks: 0-20 20-40 40-60 60-80 80-100

No of students: 5 15 30 8 2

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2. Find the standard deviation for the subsequent distribution:

Variable (v): 0-5 5-10 10-15 15-20 20-25 25-30 30-35 35-40

Frequency :( f): 2 5 7 13 21 16 8 3

3. Calculate the mean value by using assumed mean method for the following particulars

Marks: 0-10 10-20 20-30 30-40 40-50 50-60

No.of. Students: 5 10 25 30 20 10

4. Calculate the mode

 Class: 0-50 50-70 70-90 90-110 110-130 Above 130

 Frequency: 5 10 19 30 20 16

5. Find the range of weight of 10 students from the following

 41 11 14 65 73 64 53 35 71 55

6. Calculate the standard deviation from the following details

 20, 14, 16, 30, 21 and 25

7.. Calculate the Arithmetic mean by short cut method by taking the assumed mean as 75.

 Daily wage Rs. 60, 60,100, 110,55,75,40,80,90,11

8.Calculate the geometric mean

|  |  |
| --- | --- |
| Value  | 10 12 15 20 50 |
| Frequency | 2 3 10 8 2  |

9.calculate the mean value by using assumed mean method for the following particulars

 Marks: 0-10 10-20 20-30 30-40 40-50 50-60

 Number of students: 5 10 25 30 20 10

 10.Calculate the range and its coefficient from the following distribution

 Size: 60-62 63-65 66-68 69-71 72-74

 Number: 5 18 42 27 8

**10 Marks questions**

1. Calculate the standard deviation through Assumed mean method from the following particular.

 X 70 74 78 82 86 90

 Y 1 3 5 7 8 12

2. Calculate the Arithmetic mean, geometric mean and harmonic mean of four numbers

A) 3,6,24 and 48

B) 4,6,12 and 72

C, 24, 72,108 and 144

3. Calculate the arithmetic mean, mode from the following data

 Value: 1 2 3 4 5 6 7 8 9

Frequency: 7 11 16 17 26 31 11 1 1

4. calculate the standard deviation through assumed mean method from the following particulars

 X 70 74 78 82 86 90

 Y 1 3 5 7 8 12

 5.A student secures the following marks. Find the Mean, Median and Mode

 41,50,75,91,95,69,61,53,69,70,82,46,69

6.Given below are the marks obtained by 5 BBA students

Roll.No 101 102 103 104 105

Marks 10 30 20 25 15

**Unit V**

**2 Marks questions**

1. State the types of correlation

2. State any two limitations of co-efficient of correlation

3. What is mean by correlation?

4. What are the merits of co efficient of correlation?

5. What is mean by regression?

**5Marks Questions**

 1.Define correlation? Discuss its kinds?

2. Calculate the co efficient of correlation from the following data

 X 12 9 8 10 11 13 7

 Y 14 8 6 9 11 12 3

3. Calculate the spearman rank correlation co efficient for the following

 X 39 65 62 90 82 75 25 98 36 78

 Y 47 53 58 86 62 68 60 91 51 84 4. Explain the types of correlation?

 5.Find out the co efficient of variation for the following detail

 18 20 15 12 25

6.What is simple linear correlation?

7.Briefly explain simple and multiple correlation

8.What do you mean by scatter diagram

**10 Marks questions**

1. Find Karl Pearson co-efficient of correlation from the following data

X 100 101 102 102 100 99 97 98 96 95

Y 98 99 99 97 95 92 95 94 90 91

2. Calculate the Karl Pearson coefficient of correlation with assuming the mean value as 69 and 112 for X and Y respectively

X: 78 89 96 69 59 79 68 61

Y: 125 137 156 112 107 136 123 108

3. Find the Karl Pearson coefficient of correlation from the following data:

 X : 77 54 27 52 14 35 90 25 56 60

 Y :35 38 60 40 50 40 35 56 34 42

4.Compute rank correlation co efficient between X and y where

 X: 8 7 6 3 2 1 5 4

 Y: 7 5 4 1 3 2 6 8

5.Calculate the spearman rank correlation co efficient

 X 24 27 31 32 20 25 33 30 28 22

 Y 11 8 5 3 13 10 2 7 9 2

6.Find out the coefficient of correlation in the following case

 Height of father: 65 66 67 67 68 69 71 73

 (in inches)

 Height of son: 67 68 64 68 72 70 69 70

 (in inches)

7.Calculate the co efficient of correlation between X and Y

 X 22 12 10 16 15 8 9 10 8 20

 Y 14 6 7 12 10 6 8 7 6 9