

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS) FIRST SEMESTER EXAMINATION (2024 ADMISSION ONWARDS)

MG1DSCSTA100 - Fundamentals of Statistics and Data Visualisation

Duration: 1Hour

Maximum: 30 Marks

PRACTICAL EXAMINATION

From the following eight questions, students must answer any **five** questions. Each question carries **6** marks.

Solve the questions using spreadsheet in computer lab . The data in the question along with their answer must be written in the answer paper

1. A meteorologist wants to calculate the average temperature over a period to give a sense of the general weather conditions. For this, he recorded daily temperature in Fahrenheit for two weeks and obtained the data as 70, 76, 68, 71, 69, 76, 77, 70, 68, 65, 71, 72, 76 and 75. Help him to do this by calculating arithmetic mean and harmonic mean of the data [Apply][CO8]
2. Companies want to examine salary of the workers to understand overall compensation trends. If 15 workers earn in rupees 9000, 12000, 11500, 13500, 9500, 10000, 14500, 15000, 12800, 11400, 14700, 18000, 16500, 16400 and 12000 per month, find the median and mode for the data [Analyse][CO8]

3. A manager records the number of overtime hours worked by the employees in a week as 5, 7, 6.5, 3.5, 4, 2.5, 1.5, 2, 4, 5, 3, 7, 2, 4.5, 3.5. Find the geometric mean and harmonic mean of the data [Understand][CO7]
4. A quality control inspector counts the number of defects found in batches of products as 3, 7, 4, 3, 2, 7, 8, 4, 2, 4, 1, 6, 5, 7, 4, 8, 3, 6, 5, 6, 9, 1, 6, 3, 6, 7, 6, 4. Find mode and arithmetic mean of the data.[Apply][CO8]
5. A sociologist wants to study income distribution at a place. He records income of different people as 15000, 25000, 35000, 17000, 32000, 33000, 25000, 20000, 30000, 28000, 32000, 31000, 29000, 26000, 27000, 19000, 23000. Find median and harmonic mean of the data. [Analyse][CO8]
6. A demographer wants to analyse the age distribution of people in a village. He collects data and recorded the ages of some people as 19, 24, 23, 43, 27, 28, 26, 34, 39, 20, 37, 38, 29, 38, 27, 40, 38, 25, 38, 20, 35, 37, 38. Find the mode and harmonic mean of the data [Understand][CO7]
7. The following data shows the yield of wheat in kilograms from 20 experimental plots: 38.5, 62.3, 46.3, 55.8, 52.3, 40.5, 38.6, 45.8, 50.7, 44.8, 43.8, 42.1, 54.9, 53.9, 41.8, 65.7, 34.9, 40.6, 47, 45. Find arithmetic mean and median for the data [Apply][CO8]
8. A textile company sells fashion outfits for men. Their net sales for different months in a year are 55, 67, 38, 29, 47, 89, 100, 56, 55, 35, 88, 89. Find median and harmonic mean of the data [Understand][CO7]

9. The number of tourists who visited India in a particular month from different countries are 150, 176, 230, 238, 178, 327, 339, 327, 267, 256, 352, 354, 327, 400, 386, 178, 197, 243, 134, 167, 186, 327, 139. Calculate mode and median for the data [Apply][CO8]
10. The following data shows the number of house wives doing part time jobs in different wards of a Panchayat as 12, 23, 35, 20, 28, 17, 18, 30, 27, 26, 33, 22, 29, 21, 29, 28, 27, 25, 20, 26. Find arithmetic mean and median for the data. [Apply][CO8]
11. A hospital records the waiting times in minutes for patients in the emergency room. Let the waiting times be 4, 3, 7, 2, 8, 10, 12, 3. Find geometric mean and harmonic mean of the data .[Analyse][CO8]
12. The following data gives the amount of money in rupees, spent on stationary items by some housewives in a village, during a week. 350, 400, 450, 340, 360, 310, 450, 550, 530, 560, 390, 520, 460, 440, 420. Find the range of the data . [Apply][CO8]
13. The purity of 20 gold coins were examined and the readings obtained in carat are as 20, 20.4, 19.6, 22.8, 23.4, 22.9, 23.9, 20.6, 20.4, 22.7, 20.1, 19.9, 21.7, 22.5, 21, 23.6, 22.8, 21.4, 20.8, 20.4. Find range and Quartile Deviation for the data.[Apply][CO8]
14. The time in hours spent by 20 students on their mobile phone on a day were recorded as 2, 3.6, 1.8, 3.5, 2.7, 2.5, 3, 4, 5.3, 3.9, 3.6, 4.2, 1.5, 2, 2.3, 2.8, 3, 3.4, 3.5, 3. Find mean deviation and quartile deviation of the data [Apply][CO8]
15. A hospital wants to know the variation in the data related to the ages of doctors and the ages were 36, 38, 29, 33, 32, 36, 30, 29,

31, 34, 36, 28, 30, 35, 37, 32, 35, 37. Help them to do it using SD and range.[Apply][CO8]

16. A company surveys employees about their daily commute times in minutes as 10, 14, 8, 16, 15, 17, 20, 22, 18, 16, 19, 16, 10, 20, 22, 32, 31, 26, 25, 24, 21, 27. Find quartile deviation and SD of the data.[Understand][CO8]
17. The family size of 16 students in a class are 3, 5, 2, 4, 5, 2, 2, 3, 4, 5, 3, 3, 2, 4, 4, 5. Find mean deviation and SD.[Analyse][CO8]
18. The marks of students in a class, out of 25, were 24, 25, 14, 18, 17, 15, 22, 21, 20, 16, 15, 16, 18, 19, 22, 21, 20, 23. Find quartile deviation and mean deviation.[Apply][CO8]
19. A company tracks the working hours of employees in a day as 7, 6, 10, 9, 8, 7, 11, 12, 9, 7, 6, 5, 9, 10, 11, 12, 11. Find coefficient of variation for the data. [Understand][CO8]
20. The number of vehicles passing a certain junction on a busy day in 2 minutes interval are 10, 14, 16, 17, 18, 16, 14, 18, 12, 11, 14, 13, 15, 16, 15, 13, 18, 20. Find SD of the data.[Apply][CO8]
21. A teacher asked the students to complete 25 pages of a record book. 12 students have completed only 12, 15, 9, 16, 15, 14, 10, 19, 20, 17, 12, 17 pages. Find quartile deviation and SD of the data.[Analyse][CO8]
22. Attendance of students in a class during a month are 15, 20, 18, 17, 16, 22, 20, 19, 15, 19, 18, 20, 21, 20, 17, 16. Find skewness of the data.[Remember][CO8]
23. BMI values of some patients in a hospital were measured as 18.2, 19, 20.4, 21, 22.8, 19.9, 23.5, 24.7, 21.8, 23.3, 24.5, 21.5, 20.6, 20.5, 20.6. Find skewness of the data.[Analyse][CO8]

24. The number of patients admitted in different hospitals who are affected by TB are 5, 8, 11, 13, 9, 3, 2, 4, 10, 11, 16, 15, 18, 14, 11, 13, 8, 9, 10. Find skewness and kurtosis of the data.[Apply][CO8]

25. The number reels in instagram put forward by some students in a class in a week are 5, 6, 4, 10, 11, 9, 3, 9, 8, 10, 12, 6, 4, 8, 5, 11, 5, 9, 8, 6, 7. Find kurtosis of the data.[Analyse][CO8]

26. Calculate Karl Pearson correlation coefficient between ages (x) and marks (y) of students

age	10	12	13	14	16	17	18
mark	24	20	23	24	18	19	20

[Analyse][CO8]

27. Calculate Karl Pearson correlation coefficient between length (x) in cm and weight (y) in gms of 9 articles in a factory

length	7	12	10	20	16	9	10	9	12
weight	20	10	13	24	18	19	12	16	14

[Apply][CO8]

28. The monthly sales of items in a shop is as follows . Draw a simple bar diagram for this

month	Jan	Feb	Mar	Apr	May	June
sales	1500	2000	2500	1200	3000	1000

[Apply][CO8]

29. The following data shows the amount of fruits (in kg) consumed by different families in a village. Draw a simple bar diagram for this. [Analyse][CO8]

fruit	Apple	Banana	Grape	Orange	lemon	peach	papaya
freq	30	25	50	60	70	40	30

30. The following data shows the market shares of different smart phone brands. Draw a pie diagram for this

brand	A	B	C	D	E	F	G
share	30	45	70	100	25	38	60

[Apply][CO8]

31. The following data gives the distribution of expenses in a family. Draw a pie diagram for this

category	housing	food	travel	cleaning	education	hobby
expense	20000	10000	25000	5000	7000	10000

[Analyse][CO8]

32. The following data shows the marks of students in English in a class. Draw a frequency curve for this

marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
freq	7	12	15	20	5	3	2

[Apply][CO8]

33. The following data shows the waiting times (in minutes) of some students at a bus junction. Draw a frequency polygon for this data

time	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24
freq	5	11	15	16	9	7	4	2

[Apply][CO8]

34. The daily internet usage time (in minutes) of some college students are 20, 17, 25, 35, 32, 20, 40, 55, 60, 44, 43. Draw a box plot for this data.[Analyse][CO8]

35. The data on journey time of 80 students to reach school from their place of residence is given. Draw ogives for the data

time	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
No. of students	5	12	16	20	14	9	2	2

[Apply][CO8]

36. The following data shows the holding of shares by different persons in an IT company. Draw a less than ogive for the data

shares	0-4	4-8	8-12	12-16	16-20	20-24	24-28	28-32
freq	10	22	30	40	25	17	8	7

[Apply][CO8]

37. The growth in mm of certain plants during 2 months are as follows. Draw a greater than ogive for this.

growth	2-6	6-10	10-14	14-18	18-22	22-26	26-30	30-34
freq	14	26	38	45	33	22	16	7

[Apply][CO8]

$$(5 \times 6 = 30)$$

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS) FIRST SEMESTER EXAMINATION (2024 ADMISSION ONWARDS)

MG1MDCSTA100 - Statistical Data Collection

Duration: 1Hour

Maximum: 35 Marks

PRACTICAL EXAMINATION

From the following eight questions, students must answer any **five** questions. Each question carries **seven** marks.

Solve the questions using spreadsheet in computer lab . The data in the question along with their answer must be written in the answer paper

1. A real estate agent wants to calculate the average price of houses sold in a neighbourhood to give clients a sense of the typical selling price. Let the house prices in rupees be 600000, 500000, 450000, 380000, 800000, 1200000, 950000, 850000. Help him to do this by calculating arithmetic mean of the data .[Apply][CO7]
2. An IT company wants to examine the salary of the workers to understand overall compensation trends. If 20 workers earn in rupees 16000, 26000, 28000, 9000, 12000, 11500, 24000, 13500, 9500, 10000, 14500, 15000, 12800, 11400, 14700, 18000, 16500, 16400, 30000 and 12000 per month, find the median and mode for the data [Analyse][CO7]

3. A teacher asked the students how many siblings they have and their answers are 2, 1, 3, 2, 3, 4, 1, 3, 5, 4, 3, 3. Find the geometric mean of the data. [Understand][CO7]
4. A shoe company manufactured winter boots with sizes 10, 8, 9, 9, 7, 8, 6, 10, 9, 8, 9, 7, 9. Find harmonic mean of the data.[Apply][CO7]
5. The wickets taken by a bowler in different cricket matches are 3, 5, 2, 1, 4, 5, 2, 4, 1, 2, 2, 3, 5, 2, 3, 3, 2. Find median and harmonic mean of the data. [Analyse][CO7]
6. The information on the observed life times (in hours) of some electrical components are 20, 25, 56, 45, 44, 38, 67, 32, 65, 45, 50, 53, 46, 65, 33, 62, 42, 52. Find the arithmetic mean and harmonic mean of the data. [Understand][CO7]
7. The following data shows the yield of paddy in kilograms from 25 experimental plots: 55, 67.8, 38.5, 62.3, 43.8, 46.3, 55.8, 52.3, 40.5, 38.6, 45.8, 50.7, 44.8, 43.8, 42.1, 54.9, 53.9, 41.8, 65.7, 34.9, 40.6, 47, 45, 54.8, 39.7. Find harmonic mean for the data. [Apply][CO7]
8. The following data shows the number of runs scored by some top batsmen of the world in one day international cricket matches. The scores are 5500, 6700, 3800, 2900, 4700, 8900, 1000, 5600, 5500, 3500, 8800, 8900. Find median and harmonic mean of the data. [Understand][CO7]
9. The number of tourists who visited Ponmudi hills in Trivandrum in a particular month from different states of India are 350, 176, 330, 238, 198, 327, 339, 357, 567, 256, 382, 354, 327, 600, 386,

128, 168, 243, 184, 327, 106, 627, 176. Calculate mode and median for the data. [Apply][CO7]

10. A dietician is analyzing the concentration of a certain nutrient in different food items and recorded value in mg as 1.8, 2.7, 3.6, 4.8, 2.8, 3.9, 2.5, 1.8, 2.8, 3.1, 3.6, 2.5, 1.1, 3.3, 4.2. Find median for the data. [Apply][CO7]
11. A hospital records the waiting times in minutes for patients in getting medicines from pharmacy. Let the waiting times be 6, 9, 10, 4, 3, 7, 2, 8, 10, 12, 2, 5, 7, 8, 3. Find geometric mean and harmonic mean of the data. [Analyse][CO7]
12. The amount of rainfall (in cm) in a particular period at different places are 5.6, 8.7, 3.9, 5, 7.2, 4.9, 5.2, 4.6, 5.3, 5.5, 7.9, 8.3, 9.9, 5.9, 6.9, 7.3 . Find Mean Deviation of the data . [Apply][CO7]
13. A company manufactures screws and packs them . Each pack contains the number of screws as 100, 300, 450, 550, 200, 600, 350, 150, 600, 500, 350, 450, 500, 550, 700. Find the range of the data.[Apply][CO7]
14. The number of smart phones sold at different shops in Cochin on a particular day are 13, 8, 23, 22, 17, 15, 19, 12, 10, 9, 17, 19, 14, 13, 11, 23, 25, 21, 17, 15. Find mean deviation and standard deviation of the data. [Apply][CO7]
15. The temperature recorded in Fahrenheit at different places of Kerala on a particular day were 97, 92, 98, 90, 91, 96, 97, 91, 92, 92, 99, 98. Calculate Standard Deviation and range.[Apply][CO7]
16. The yields in gm from different plants at a village are 10, 14, 8, 16, 15, 17, 20, 22, 18, 16, 19, 16, 10, 20, 22, 32, 31, 26, 25, 24,

21, 27. Find quartile deviation and range of the data.[Understand][CO7]

17. A teacher asked the students to complete 30 pages of a record book. 15 students have completed only 12, 15, 17, 13, 16, 19, 22, 15, 8, 6, 20, 22, 21, 24, 25 pages respectively. Find mean deviation and Standard Deviation.[Analyse][CO7]

18. The marks of students in a class, out of 20, were 14, 15, 14, 18, 17, 15, 20, 11, 10, 16, 15, 16, 18, 19, 12, 20, 20, 13. Find mean deviation.[Apply][CO7]

19. An IT company manager tracks the working hours of employees in a day as 8, 8, 7, 6, 10, 9, 8, 7, 10, 12, 9, 7, 6, 5, 9, 10, 11, 12, 11. Find standard deviation for the data. [Understand][CO7]

20. The time (in seconds) taken by some athletes to complete a 100 metre race are 20, 24, 16, 27, 18, 16, 24, 18, 12, 21, 24, 19, 15, 16, 15, 23, 28, 20, 18, 22, 24, 25. Find Standard Deviation of the data.[Apply][CO7]

21. The number of patients admitted at different hospitals in Kerala who are suffering from TB on a particular day are 22, 14, 16, 18, 20, 22, 17, 18, 19, 17, 11, 19, 17, 15, 15, 17. Find quartile deviation and Standard Deviation of the data.[Analyse][CO7]

22. The daily rainfall in mm at different places are given below. Draw a frequency curve for the data

rainfall	0-3	3-6	6-9	9-12	12-15	15-18	18-21
No. of places	24	20	23	24	18	19	20

[Analyse][CO7]

23. The number of people using each social media platform in a small village are as follows. Draw a pie diagram for this.

Platform	No. of people
instagram	150
facebook	180
whatsapp	250
twitter	90
snapchat	70
telegram	50

[Apply][CO7]

24. The monthly exports of items in a shop is as follows . Draw a simple bar diagram for this

month	Jan	Feb	Mar	Apr	May	June
exports	2500	2000	1500	1300	3000	1400

[Apply][CO7]

25. The following data shows the time (in hours) taken for daily activities by certain professionals in a company. Draw a simple bar diagram based on this data [Analyse][CO7]

activity	work	sleep	leisure	reading	purchase	phone
time	8	6	3	2	2	3

26. The following data shows the market sales of different laptop brands. Draw a pie diagram for this

brand	A	B	C	D	E	F	G
sales	30	45	70	100	25	38	60

[Apply][CO7]

27. The following data gives the distribution of marks of students in a class. Draw a frequency polygon for this

marks	0-8	8-16	16-24	24-32	32-40
students	20	8	8	12	15

[Analyse][CO7]

28. The following data shows the commute times (in minutes) of some professionals in a company. Draw ogives for this data

time	0-5	5-10	10-15	15-20	20-25	25-30	30-35
freq	7	12	15	20	5	3	2

[Apply][CO7]

29. The following data shows the times (in minutes) taken for online education by some students in a college in a day. Draw a less than ogive for this data

time	0-10	10-20	20-30	30-40	40-50	50-60	60-70
freq	5	11	15	16	9	7	4

[Apply][CO7]

30. The data about the website visits by people of different age groups are given. Draw a greater than ogive for the data

age	10-15	15-20	20-25	25-30	30-35	35-40	40-45
No. of people	5	12	16	20	14	9	2

[Apply][CO7]

31. The following data shows the number books read by different persons in a year, from a library. Draw ogives for the data

books	0-4	4-8	8-12	12-16	16-20	20-24	24-28	28-32
No. of people	10	22	30	40	25	17	8	7

[Apply][CO7]

32. The following data shows the sleeping hours of some doctors in a hospital. Draw a greater than ogive for this.

hours	2-4	4-6	6-8	8-10	10-12	12-14
freq	14	26	38	45	33	22

[Apply][CO7]

33. The following data shows the hours spent by students in a school to do their home works in a week. Draw a frequency curve for this data

hours	0-3	3-6	6-9	9-12	12-15	15-18
freq	12	20	25	15	8	4

[Analyse][CO7]

34. The following data shows the weight of packages (in pounds) shipped from an international company to different parts of world. Draw a frequency curve for this data

weight	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No of packages	16	30	40	25	18	16	3

[Apply][CO7]

35. The following data shows the types of pets owned by different families in a city. Draw a pie diagram for this

Pet type	No. of families
cats	45
Love birds	50
fish	30
parrot	20
others	10

[Apply][CO7]

(5 x 7 = 35)

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

MGU-UGP (HONOURS) FIRST SEMESTER EXAMINATION (2024 ADMISSION ONWARDS)

MG1MDCSTA101 - Data Analysis using Libre Calc

Duration: 1Hour

Maximum: 35 Marks

PRACTICAL EXAMINATION

From the following **eight** questions, students must answer any **five** questions. Each question carries **seven** marks.

Solve the questions using LibreOffice Calc in computer lab. The data in the question along with their answer must be written in the answer paper.

1. Generate 30 uniform random numbers in between 0 and 500. Find its mean, median and mode. Also find the range and standard deviation of the 30 randomly generated numbers.
[Understand][CO2]

2. The weekly sales report of a shop in a village in Kottayam District is given below.

Sales Report

Sl.no	Item (unit)	No.of units	Unit cost
1	Pen (packet)	32	28.90
2	Pencil (packet)	57	32
3	Binder clip (box)	100	46.28
4	Floor cleaner (bottle)	70	94
5	Curry powder (packet)	100	46
6	Soap (packet)	135	50
7	A4 Paper (bundle)	20	150
8	Milk (packet)	550	28
9	Talcum powder (pack)	17	54
10	Shampoo (sachet)	64	3

Enter the above data in LibreOffice Calc and prepare one more column showing the total sales for each item (product of last two columns) and obtain the value of total weekly sale of the shop.

[Apply][CO1]

3. The following data provides the number of different surgical operations performed in a hospital during a given week. Represent the data by means of a simple bar diagram

Type of operation	Number of cases
General surgery	110
Thoracic surgery	20
Prostate surgery	45
Urologic surgery	82
Surgery of abdomen	120
Neurosurgery	30
Others	18

[Analyse][CO2]

4. Thirty students in a business statistics class reported their major fields of studies, which is summarized as follows: Construct a simple bar diagram for the major fields for these 30 students.

Major field	Number of students
Accounting	12
Management	6
Marketing	4
Finance	5
Undecided	3

[Analyse][CO2]

5. The following data gives the time (in hours) taken for daily activities by a certain computer professional in a company. Represent the data by means of a simple bar diagram.

activity	work	sleep	leisure	reading	purchase	phone
time	9	6	3	1	1	4

[Analyse][CO2]

6. The following data provides the market sales of different laptop brands in a city. Represent the data by means of a pie diagram.

brand	A	B	C	D	E	F	G
sales	48	33	60	95	15	24	55

[Analyse][CO2]

7. The following data is about the monthly expenditure of two families A and B. Represent the data by means of two pie diagrams.

Item of expenditure	Expenditure(Rs.)	
	Family A	Family B
Food	210	230
Clothing	130	150
House Rent	100	130
Education	70	80
Medical	40	50
Others	50	80

[Analyse][CO2]

8. The following data shows the types of pets owned by different families in a city. Represent the data by means of a pie diagram.

Pet type	No. of families
Dogs	55
Cats	45
Love birds	50
Fish	30
Parrot	10
Others	10

[Analyse][CO2]

9. The following data typically represents the yearly expenditure of a student in a private university. Represent the data by means of a pie diagram.

Expenditure	Amount
Tuition	13600
Room rent	9000
Books Purchase	2400
Transportation	900
Recreation	2000
Other	2100

[Analyse][CO2]

10. The following data provides the number of tourists who visited India in December 2023 from 25 different countries.

50, 76, 30, 40, 78, 27, 39, 27, 67, 56, 52, 54, 27, 40, 86, 17, 97, 43, 34, 67, 86, 27, 39, 47, 40.

Calculate mean, median and mode for the above data.

[Analyse][CO3]

11. The following data gives the daily wages (in rupees) of 30 workers in a factory:

60, 43, 40, 32, 47, 32, 47, 45, 50, 37, 53, 17, 26, 39, 59, 68, 44, 30, 25, 32, 40, 62, 46, 29, 32, 54, 41, 32, 30, 39.

Calculate mean, median and mode for the above data.

[Analyse][CO3]

12. The monthly salaries of 10 employees of a company are given below.

Sl.No	Name	Gender	Monthly Salary(Rs)
1	Varun Kumar	Male	41000
2	Chanchal Sawant	Female	25000
3	Rohan Patel	Male	32000
4	Rubeena Amir	Female	48000
5	Ann Thomas	Female	37000
6	Priya Mishra	Female	51000
7	Purushotham Sharma	Male	47500
8	Aashiq M	Male	43750
9	Megha Varma	Female	32000
10	Albert James	Male	32000

- a) Find the mean, median and mode of the monthly income.
b) Find the mean and median of the monthly income of male and female separately. [Analyse][CO3]

13. An IT company manager tracks the working hours of 30 employees in a particular day as follows:

10, 11, 7, 8, 10, 9, 8, 8, 7, 6, 10, 9, 8, 7, 10, 12, 9, 7, 6, 5, 9, 10, 11, 12, 11, 8, 5, 6, 10, 12 Find the range and standard deviation of working hours of the employees. [Analyse][CO3]

14. The time (in seconds) taken by 30 athletes to complete a 100 metre race are as follows:

15, 17, 22, 20, 14, 16, 15, 14, 20, 24, 16, 27, 18, 16, 24, 18, 12, 21, 24, 19, 15, 16, 15, 23, 28, 20, 18, 22, 24, 25. Find the range and standard deviation of the athlete's finishing time for that race.
[Analyse][CO3]

15. The number of smart phones sold at 30 shops in Cochin on a particular day are as follows:

9, 16, 20, 14, 23, 13, 10, 22, 18, 9, 13, 8, 23, 22, 17, 15, 19, 12, 10, 9, 17, 19, 14, 13, 11, 23, 25, 21, 17, 15. Find range and standard deviation of phone sales occurred on that day
[Analyse][CO3]

16. An IQ test was administered to 15 students before and after they were trained. The results are as follows. Use paired t test, examine whether there is any effect for the training programme.

Candidate	IQ score before training	IQ score after training
1	90	86
2	91	90
3	95	95
4	92	94
5	89	95
6	76	81
7	83	88
8	81	85
9	95	99
10	91	79
11	88	92
12	89	90
13	97	99
14	88	97
15	92	87

[Apply] [CO4]

17. A farm machinery manufacturing company has designed a new seed drill. In order to study the efficiency of the seed drill as compared to the existing one, an experiment was carried out with plots of land grouped in to 12 pairs. One of them was sown using special drill and the other by ordinary drill. The grain yields are given as follows: The company claims that their new seed drill increases the yield. Use paired t test, examine whether the data provide an evidence for or against their claim.

Plot pair no	Special drill	Ordinary drill
1	7.9	6.5
2	8.4	8.0
3	6.4	6.4
4	8.6	7.5
5	5.7	5.6
6	5.5	6.2
7	5.9	6.4
8	7.3	6.9
9	6.1	6.8
10	8.3	7.7
11	7.3	6.0
12	6.9	6.2

[Apply] [CO4]

18. The hours of spending in front of TV and test paper marks of 10 school students are as follows: Find Pearson's coefficient of correlation and interpret the result. Also represent the data by means of a scatter diagram.

TV hours	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5
TP marks	89	78	75	56	55	52	44	37	31	25

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19. The following data relates to prices of 10 commodities and quantities demanded. Find Pearson's coefficient of correlation between price and demand and interpret the result. Also represent the data by means of a scatter diagram.

Price	10	14	15	30	25	27	32	18	50	5
Demand	68	19	37	46	55	52	44	37	10	10

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20. The following data provides the mental age(x) and scores in a test (y) of a group of 10 students in a class. Calculate Karl Pearson correlation coefficient between ages (x) and scores (y) of students and interpret the result. Also represent the data by means of a scatter diagram.

age	10	12	13	14	16	17	18	5	7	9
score	24	20	23	24	18	19	20	1	8	20

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21. The following data provides the length (x) in cm and weight (y) in gms of a sample of 10 articles in a factory. Calculate Karl Pearson correlation coefficient between length (x) and weight (y) of articles and interpret the result. Also represent the data by means of a scatter diagram.

length	4	12	10	20	16	9	10	9	12	3
weight	19	10	13	24	18	19	12	16	14	8

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22. The following data relates to marital status and performance in an examination. Use chi-square test, examine whether the performance depends on marital status and interpret the result.

	performance	
	Good	Bad
married	70	90
unmarried	30	50

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23. The following table shows the association among 1000 school boys of their general ability and their mathematical ability. Use chi-square test, examine whether general ability and mathematical ability are independent.

	General ability			
		Good	Fair	Poor
Mathematical ability	Good	57	20	3
	Fair	260	251	154
	Poor	59	94	102

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24. The following data gives the yield of wheat in 30 test plots which are given 3 different fertilizers: Use ANOVA, test whether the fertilizers are equal in their effects.

Fertilizer1	80	70	65	60	60	50	75	80	75	85
Fertilizer2	80	75	70	65	60	60	70	75	80	85
Fertilizer3	60	60	60	50	50	40	65	75	70	70

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25. The varieties A, B, C, D, E, F, G of paddy were sown in 5 plots each and the following yields in quintals per acre were obtained. Use ANOVA, test whether the data indicate a significant difference in the yields of the varieties.

A	B	C	D	E	F	G
13	10	12	15	13	13	14
12	12	11	10	10	11	12
18	16	13	17	14	15	19
15	13	14	14	15	16	17
11	11	10	10	9	12	15

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