Anekant Education Society's
Tuljaram Chaturchand College of Arts Science and commerce, Baramati
(Autonomous)
F.Y.B.COM Sem :I
Business Statistics [COMBS1104A]
Question Bank
1. Choose the correct alternative of the following: (1 mark each)

1. Measures of central tendency for a given set of observations measures

    (i) The scatterness of the observations   (ii) The central location of the observations

    (iii) Both (i) and (ii)   (iv) None of these.

2. Which of the following statements is wrong?

    (i) Mean is rigidly defined
    (ii) Mean is not affected due to sampling fluctuations
    (iii) Mean has some mathematical properties
    (iv) All these

3. For open-end classification, which of the following is the best measure of central tendency?

    (i) AM   ii) GM   (iii) Median   (iv) Mode

4. The presence of extreme observations does not affect

    (i) AM   (ii) Median   (iii) Mode   (iv) Any of these.

5. In case of an even number of observations which of the following is median ?

    (i) Any of the two middle-most value
    (ii) The simple average of these two middle values
    (iii) The weighted average of these two middle values
    (iv) Any of these

6. While computing the AM from a grouped frequency distribution, we assume that

    (i) The classes are of equal length   (ii) The classes have equal frequency
    (iii) All the values of a class are equal to the mid-value of that class
    (iv) None of these.

7. If there are 3 observations 15, 20, 25 then the sum of deviation of the observations from their AM is

    (I) 0   (ii) 5   (iii) –5   (iv) None of these.

8. What is the median for the following observations?   5, 8, 6, 9, 11, 4.

    (i)   6   (ii) 7   (iii) 8   (iv) None of these

9. What is the modal value for the numbers 5, 8, 6, 4, 10, 15, 18, 10?

    (i) 18   (ii) 10   (iii) 14   (iv) None of these

10. What is the GM for the numbers 8, 24 and 40?

    (i)   24   (ii) 12   (iii) $8.^3\sqrt{15}$ (iv) $10\sqrt{\quad}$

11. The harmonic mean for the numbers 2, 3, 5 is

    (i)   2.00 (ii) 3.33   (iii) 2.90   (iv)   . $\sqrt[3]{30}$

12. If there are two groups containing 30 and 20 observations and having 50 and 60 as arithmetic means, then the combined arithmetic mean is

    (i) 55   (ii) 56   (iii) 54   (iv) 52.

13. The average salary of a group of unskilled workers is Rs.10,000 and that of a group of skilled workers is Rs.15,000. If the combined salary is Rs.12,000, then what is the percentage of skilled workers?

    (i)   40%   (ii) 50%   (iii) 60%   (iv) none of these

14. Dispersion measures

    (a)   The scatterness of a set of observations

    (b)   The concentration of a set of observations

    (c)   Both a) and b)

    (d)   Neither a) and b).

15. When it comes to comparing two or more distributions we consider

a) Absolute measures of dispersion   (b) Relative measures of dispersion

(c) Both a) and b)   (d) Either (a) or (b).

16. Which one is an absolute measure of dispersion?

    (a)   Range   (b) Mean Deviation

    (c) Standard Deviation   (d) All

17. Which measure of dispersion is most usefull?

    (a) Standard deviation   (b) Quartile deviation

    (c) Mean deviation   (d) Range

18. The range of 15, 12, 10, 9, 17, 20 is

    (a) 5 (b) 12   (c) 13   (d) 11.

19. If all the observations are increased by 10, then

    (a)   SD would be increased by 10

    (b)   Mean deviation would be increased by 10

    (c)   Quartile deviation would be increased by 10

    (d)   All these three remain unchanged.

21. If all the observations are multiplied by 2, then

    (a) New SD would be also multiplied by 2

    (b) New SD would be half of the previous SD

    (c) New SD would be increased by 2

    (d) New SD would be decreased by 2.

22.————— can be calculated from a frequency distribution with open end intervals

(a)Median (b) Mean   (c) Mode   (d) non

23. Which among the following is a measure of positional average?

a) arithmetic mean b) median c) harmonic mean d) geometric mean

24. Median= l+ c (N/2 – m)/f where 'm' is

a) Cumulative frequency of the median class

b) Frequency of the median class

c) Cumulative frequency of the class preceding the median class

d) frequency of the class preceding the median class

25. Standard Deviation is

(a) absolute measure   (b) relative measure   (c) both   (d) none

26. Coefficient of variation is

(a) absolute measure   (b) relative measure   (c) both   (d) none

27. Coefficient of variation = (Standard Deviation x 100)/Mean

(a) true   (b) false   (c) both   (d) none

28. If mean = 5, Standard deviation = 2.6 then the coefficient of variation is

(a) 49   (b) 51   (c) 50   (d) 52

29. Different methods give different averages which are known as the

(a) measures of central tendency   (b) statistics

(c) measures of dispersion   (d) skewness

30. If the values of the variables are arranged in ascending order of

magnitude, the middle term is

(a) mean   (b) mode   (c) median   (d) quartile

31. If x1, x2 x3 … xn are a set of n observations then the geometric mean   (a)

n $\sum$log xi   (b) n /$\sum$log xi   (c) $\sum$log x/ n   (d) Antilog($\sum$log x /n)

32. The totality of all objects under a study is called _____

a) Sample b) Group C)Population d)Specimen

33. Which of the following is not an example for a primary data?

a) Mailed questionnaire b)Local correspondents c)Indirect oral investigation

d) Survey reports in newspapers, journals

34. A statistical population may consists of

a)Infinite number of items   b)Finite number of items

c)either (a) or (b)   d)Neither (a) nor (b)

35. A study based on complete enumeration of data is known as

a)Sample survey b)Pilot survey c)Census survey d)None of the above

Define (1 mark each)

1. Arithmetic Mean
2. Population
3. Sample
4. Attribute
5. Open End Class
6. Class width
7. Class limits
8. Class mark
9. Class boundaries
10. Discrete Variable
11. Variable
12. Geometric Mean
13. Harmonic Mean
14. Null Matrix
15. Unit Matrix
16. Triangular Matrix
17. Types of shares
18. Face value
19. Market Value
20. Dividend

Attempt the following: (4 marks each)

1. Explain the concept of Bonus shares and face value of shares.
2. A man invested Rs. 12648 at Rs. 124 and earn a dividend of Rs. 1122. Find the rate of dividend?
3. Two companies have shares of 13% at A.122 and 17% at A.150 respectively. In which of the shares, Anil should invest the money.
4. Mr. X invested Rs.12, 400 in 12.4% shares at Rs.124. How much dividend will be get?
5. Ravi holds 500 shares of Rs.20 each. The company issues shares in the ratio 2:5. The company declared a dividend of 30% on the enlarged capital. What is the average rate of return on his investment?
6. Define the following terms : Share, Dividend

7. Explain the terms: Equity shares and Bonus shares.

8. Explain the concept of commission and brokerage.

9. Find how many shares of market value of `Rs. 50 with face value of Rs. 10 can be purchased for Rs. 10,000.

10. From the following which investment is better:

    7% of Rs. 100 shares at Rs.120 or

    8% of Rs. 10 shares at Rs.13.50?

11. Which investment is better ? Jusfity : 6% at Rs. 96 or 9% at Rs. 72. [Face Value Rs. 100]

12. Mr. Sham owns 500 shares of ABC company. The company declares a dividend of 10% the face value of each share is Rs. 10. Find total dividend which Mr. Sham will get.

13. Saptak invested to Rs 80,000 to purchase equity shares of TATA company at market value of Rs. 210 each through a broker, charging 1% brokerase. The face value of a share is Rs.10. How many shares did saptak purchase?

14. A man invested Rs. 13,568 in 7% shares at 106 and Rs. 12,648 in 11% shares at 124.How much income would he get in all?

15. Avinash holds 300 shares of Rs. 10 each. The company issues shares in the ratio 3:5.The company declared a dividend of 25% on the enlarged capital. What is the average rate of return on his investment?

16. A man purchase shares of market value 106 of Rs. 13,568 and earn dividend of Rs. 896 .Find rate of dividend.

17. Akshay sold the share of 6% at Rs. 90 of Rs. 10000 and invests the proceeds in 10% at Rs.120.What is the change in his investment.

18. What is the market value of 25% share so that there may be 15% net income after paying tax at 10%?

19. Solve the system of linear equations :

    $3x + 2y = 6$

    $5x + 4y = -11$

    Using matrix inverse method.

20. I f A=$\begin{bmatrix} 2 & 1 \\ 3 & 2 \end{bmatrix}$, show that $A^2 = 4A - I$.

21. If A=$\begin{bmatrix} 2 & 3 & 5 \\ -1 & 6 & 1 \end{bmatrix}$ and B=$\begin{bmatrix} 5 & -2 & 3 \\ 2 & -1 & 6 \end{bmatrix}$ Find A+B.

22. If A=$\begin{bmatrix} 4 & 1 \\ 6 & 2 \end{bmatrix}$ and B=$\begin{bmatrix} 1 & 8 \\ -9 & 2 \end{bmatrix}$ Find |A|+ |B|.

23. If A=$\begin{bmatrix} 3 & 2 \\ 5 & 4 \end{bmatrix}$ then find 5A.

24. Find Determinants of matrix A= If A=$\begin{bmatrix} 1 & 0 & 4 \\ -2 & 2 & 5 \\ 3 & -1 & 2 \end{bmatrix}$

25. Find Inverse of matrix: A=$\begin{bmatrix} 6 & 4 \\ 3 & -2 \end{bmatrix}$

26. Find Inverse of matrix: A=$\begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$

27. Find determinant of A= $\begin{bmatrix} 3 & 4 \\ -3 & 1 \end{bmatrix}$

28. If A= $\begin{bmatrix} 2 & -1 & 3 \\ 4 & 5 & 2 \end{bmatrix}$ and B=$\begin{bmatrix} -1 & 1 \\ 0 & -2 \\ 3 & 6 \end{bmatrix}$ Find AB and BA are they qual?

29. Explain the scope of statistics in economics & industry.

30. Explain the various methods of sampling.

31. Describe the scope of Statistics in Management Science

32. Distinguish between Census and Sampling.

33. Define the term statistics. Explain its scope in Management science.

34. Explain SRSWR Method.

35. Define the term statistics .Explain limitations of statistics.

36. Distinguish between Simple Random Sampling with Replacement (SRSWR)

    and   Random Sampling without Replacement (SRSWOR)

37. What are the advantages of sampling method over census method?

38. .Explain the scope of statistics in management sciences.

39. Explain Simple Random Sampling With Replacement (SRSWR) and Simple

40. Random Sampling without Replacement (SRSWOR).

41. Describe the scope of statistics in the following fields :Economics   and   Management

    Sciences

42. Describe advantages of Sampling over Census.
43. Explain the procedure of stratified random sampling.
44. Give definition of statistics according to 'Webster' and 'Secrist'.

45. The following is the distribution of height of students in a class of secondary school.

High in c.m :	130-134	135-139	140-144	145-149	150-154	155-159
No. of students :	5	15	28	24	17	11

1. Find the class mark of 3rd class.
2. Find the class width of 5th class.
3. Find the class boundries of 6th class
4. How many students have height less than 145c.m.?
5. How many students have more than 150 c.m. height?

37 Find the median from the following information

Marks:	1-20	21-40	41-60	61-80	81-100
No. of students	1	9	32	16	7

38 Find the mean from the following information.

Marks:	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	2	8	15	15	7	3

39 Calculate the Mean, median & mode from the following data.

70, 62, 78, 95, 110, 114, 75, 72, 90, 92, 62, 100

40 Explain inclusive classification with illustration.

41 What are the requirements of good measure of central tendency?

42 Calculate the mode for the following frequency distribution :

Marks:	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	5	8	12	15	6	4

43 A set of 20 values arithmetic mean 10. Find the arithmetic mean if:

(a)   each value is doubled

(b)   each value is increased by 2

(c)   each value is decreased by 5

(d)   each value is increased by 2 and then doubled.

(e)   each value is doubled and then increased by 5

44 Draw the less than ogive curve for the following data:

Class   0-20   20-40   40-60   60-80   80-100

Frequency   5   15   22   18   10

        Also locate the median from it.

45 The following is the frequency distribution of bonus points obtained by

    100 workers in a factory.

Bonus points	Less than 4	4-8	8-12	12-16	More than 16
No. of Workers	10	24	30	20	16

Answer the following questions.

i) State the Model class.

ii) Find class-mark of 3rd class.

iii) Find class-width of 2nd class.

iv) Find the percentage of workers who obtained more than 8 bonus

points.

46 Draw Histogram for the following frequency distribution.

Size	0-10	10-20	20-30	30-40	40-50
Frequency	05	08	13	07	03

47 Draw more than ogive curve, For the following data :

Marks	Below 10	Below 20	Below 30	Below 40	Below 50
No. of students	1	8	35	46	50

48 Explain the term: Variable and   Attribute.

49 Explain graphical method of determination of median.

50 Explain graphical method of determination of mode.

51 A cyclist pedals from his house to his college at a speed of 10 km/h and back from the

college to his house at 15 km/h Find the average speed.

52 A train travels 50 kms at a speed of 40 kms/hour, 60 kms at a speed of 50 kms/hour and

40 kms at a speed of 60 kms/hour. Calculate the weighted harmonic mean of the speed of

the train taking distances travelled as weights.

53 What is Dispersion? Explain the various types of measures of dispersion?

54 Calculate the S.D. and C.v. from the following.

14, 8, 11, 10, 13, 16, 5, 9, 12, 2.

50 Calculate Standard Deviation for the following data.

marks	0-20	20-40	40-60	60-80	80-100
Frequency:	5	12	32	40	11

51 Find range and coefficient of range for the following data :

21, 25, 26, 28, 29, 45, 60, 70

52 From the data given below, which batsman is more consistent?

Batsman	A	B
Mean	86	105
S.D	8	15

53 The relevant data of two types of torches is provided in the following manner; find which type of torch is more consistent in life.

Type	Average life in hrs.	S.D. of life
Torch - A	1365	215
Torch - B	1665	290

54 The means of two samples of sizes 50 and 100 are 40 and 25 respectively. The standard   deviations of those samples are 10 and 8 respectively. Find the combined standard   deviation.

55 Calculate standard deviation for the following frequency distribution:

Class	0-2	2-4	4-6	6-8	8-10	10-12
Frequency	8	15	20	24	8	5

56 Explain absolute measure of dispersion and relative measure of dispersion.

57 The means of two samples of sizes 50 and 100 are 40 and 25 respectively and standard deviations are 10 and 8 respectively. Obtain the combined standard deviation.

58 State any two merits and demerits of standard Deviation. (S.D.)

59 Two groups of n1 and n2 observations have same arithmetic means and standard deviations σ1 and σ2 respectively. State the formula for combined s.d.

60   A group of 50 items have mean and S.D. 61 and 8 respectively. Another group of 100 items have mean and S.D. 70 and 9respectively. Find mean and S.D. of combined group.

61 Compute standard deviation and coefficient of variation for the following data :
     36, 15, 25, 10, 14

62 If $n = 100$, $\sum x = 553$, $\sum x^2 = 45761$ find SD and CV.

63 The number of runs scored by two Crickters ' A' and ' B'in 10 matches are given below

A	5	20	90	76	102
B	40	35	60	62	58

       i.   Which Crickter is better in average? Why?

       ii.   Which Crickter is more consistent? Why?

64 What is Dispersion? Explain the various types of measures of dispersion?

65 Distinguish between inclusive and exclusive method of classification.