Quantitative Methods

(PRC-02)

TOPICAL

IMPORTANT QUESTIONS (Updated)

(For August-22 to November-22)

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Note:

- Chapter wise solution will be available soon on my You Tube channel.
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RISE PREMIER

Chapter-1
Co-ordinate System & Equation of Straight Line:

1.1) Find The slope of the line 8x + 24y + 5 = 0:
- a) 3
- b) -1/3
- c) -3
- d) 1/3

1.2) The equation representing a straight line is 3y = 7x + 11. The y-intercept is:
- a) 3/7
- b) 11/3
- c) 7/3
- d) 11/7

1.3) The equation representing a straight line is 4y = 5x + 8. The slope of line is:
- a) 1.25
- b) 5
- c) 0.8
- d) 0.5

1.4) 5x + 2y – 10 = 0, which of the following is true about the equation
- a) Degree of equation is 1
- b) slope = -2.5
- c) Both
- d) None of these

1.5) If a line passes through (5, 3) and the x-intercept is half of the y-intercept. Write the equation in slope intercept form.
- a) Y = -2 x + 13
- b) Y = 4 - 2x
- c) Y = 2x – 4
- d) y = 2x + 4

1.6) A line passes through (5, 3). It has an x-intercept value which is twice the y-intercept value. The slope intercept form of the equation of straight line will be:
- a) Y = -1/2 x + 5.5
- b) Y = -1/2x + 11
- c) Y = -2x + 5.5
- d) y = -2x - 11

1.7) A line having negative slope passes through the point (4,8). If the value of x-intercept is one-forth of the value of y-intercept. Find the equation of straight line.
- a) Y = -2x
- b) y = -4x + 8
- c) y = -3x + 24
- d) y = -3x + 20

1.8) Write an equation that describes the line with slope = −1/5 and y-intercept = 1/3 in slope intercept form.
- a) y = -1/5x + 1/3
- b) y = 1/3x + 1/2
- c) y = - 1/3x - 1/3
- d) y = 1/5x + 1/3

1.9) Which line represent semi-variable cost/ Total cost/mixed cost.[MCQ]

a)

b)

c)

d)   None of these

[also determine which line represent variable cost (a) and fixed cost(c).]

a)   A   b)   B

c)   C   d)   D

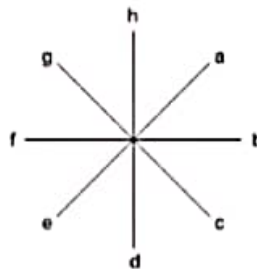**1.10)**   Which line passes through positive negative region?

a)   g & c   b)   h & d

c)   f & b   d)   a & e

1.11)   Identify the Negative Slope of the above diagram.

a)   g & c   b)   h & d

c)   f & b   d)   a & e

1.12)   Identify the Infinite Slope of the above diagram

a)   g & c   b)   h & d

c)   f & b   d)   a & e

1.13)   Identify the zero Slope of the above diagram.

a)   g & c   b)   h & d

c)   f & b   d)   a & e

1.14)   slope of Two lines having m_1 and m_2 are perpendicular if

a)   m1 x m2 = 1   b)   m1 = m2

c)   m1 x m2 ≠ 1   d)   m1 x m2 = -1

1.15)   slope of Two lines having m_1 and m_2 are parallel If

a)   m1 x m2 = 1   b)   m1 = m2

c)   m1 x m2 ≠ 1   d)   m1 x m2 = -1

Chapter-02
MATHEMATICAL & QUADRATIC EQUATIONS:

2.1) For $8xy^7+5x^2y^3+8x-5$ degree of polynomial is _____
- a) 4
- b) 6
- c) 8
- d) 10

2.2) Factorize the following $x^2+7x+12 = 0$
- a) (x-3) (x-4)
- b) (x+4) (x+3)
- c) (x-3) (x-4)
- d) (x-4) (x-3)

Solution ➔ https://www.youtube.com/watch?v=MaV4u-Bdp5l&t=1402s
(Video name: CH 01 Math QM)
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2.3) Which of the following is the factors of the expression $16x^2 - 16x +4$
- a) 4(x-1) (x+1)
- b) 4(x-1) (x-1)
- c) $4(2x-1)^2$
- d) $4(2x+1)^2$

2.4) solve the following $x^2+7x+12 = 0$. Find the Root of the equation.
- a) (x = 3), (x = 4)
- b) (x = 4), (x = 3)
- c) (x = 6), (x = 4)
- d) (x = -4) (x = -3)

2.5) Factorize the following $3x^2- 6x - 9$
- a) 3(x - 3) (3x + 1)
- b) 3(x - 3) (x + 1)
- c) (3x + 9) (x - 1)
- d) (3x - 9) (3x + 3)

2.6) Quadratic equations when plotted on a graph are may be _____
- a) U shaped
- b) inverted U shape
- c) both
- d) None

2.7) Find the value of x and y: $\frac{x+1}{y+1} = \frac{4}{5}$, $\frac{x-5}{y-5} = \frac{1}{2}$
- a) X = 7, y = 9
- b) X = 7, y = 7
- c) X = 9, y = 9
- d) None

Solution ➔ https://www.youtube.com/watch?v=MaV4u-Bdp5l&t=1402s
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2.8) Find the value of x and y:

$$\frac{x+1}{y-1} = \frac{4}{5}, \qquad \frac{x+5}{y-5} = \frac{5}{4}$$

    a)   X = 5, y = 10   b)   X = 15, y = 21

    c)   X = 5, y = 15   d)   X = 6, y = 12

2.9) Find the value of x and y:

$$\frac{x+3}{x-2} - \frac{8}{3} = \frac{x+2}{x-1}$$

    a)   3/4, ½   b)   1/4, 1/4

    c)   5/4, ½   d)   13/4, 1/2

2.10) Simplify $4x^4 + 81y^4$

    a) $(2x^2 + 9y^2 + 6xy)(2x^2 + 9y^2 + 6xy)$ b) $(2x^2 + 9y^2 + 6xy)(2x^2 + 9y^2 - 6xy)$

    c) $(2x^2 + 9y^2 + 6xy)(2x^2 - 9y^2 + 6xy)$ d)   None

Solution ➔ https://www.youtube.com/watch?v=MaV4u-Bdp5I&t=1402s
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2.11) $25x - \frac{500}{x} = 25$. Find the value of x?

    a)   -4 and 5   b)   4 and -5

    c)   6 and 3   d)   5 an d-3

2.12) $15x - \frac{650}{x} = 15$. Find the value of x?

    a)   -6.1 & 7.1   b)   -7.1 & 6.1

    c)   6.1 & 3.1   d)   -6.1 & -3.1

2.13) Solve for 3x + 4y = 36 and x + 2y = 16

    a)   X = 4, y = 6   b)   X = 6, y = 4

    c)   X = 5, y = 10   d)   X = 6, y = 12

2.14) Hamid and Sajid have some amount to invest in such a way that sum of 5 time of Sajid and 3 times of Hamid's investment is 8 million and difference between 3 times of Sajid and twice of Hamid is 1 million find investment of both respectively.

    a)   1 million each   b)   1.5 million & 1 million

    c)   2 million & 1.5 million   d)   2 million each

2.15) Sajid and Hamid have some amount to invest in such a way that 1 time of Hamid and 7 times of Sajid's investment is 9 million and thrice of Hamid and twice of Sajid is 4 million Find investment of both respectively

a) 3 million & 3.05 million

b) 0.526 million &1.211million

c) 2 million each

d) None of these

2.16) Hamid and Majid invest in a project. If sum of 4 time of Hamid and 5 times of Majid is 32 million and difference of 2 times of Majid and 3 times of Hamid is 6 million Find investment of both respectively

a) 3 million & 4 million

b) 3 million & 6 million

c) 1 million & 2.5 million

d) None of these

2.17) Kamran and Salman invested in a business. The sum of investment of Kamran and seven times the investment of Salman amounts to Rs 18 million. Difference between thrice the investment of Kamran and twice the investment of Salman is Rs 8 million. Amount invested by Kamran and Salman is:

a) Rs 11 and 1 million respectively

b) Rs 7.5 and 1.5 million respectively

c) Rs 4 and 2 million respectively

d) Rs 8 million each.

Solution ➜ https://www.youtube.com/watch?v=MaV4u-Bdp5I&t=1402s
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2.18) 6 years ago the age of father was 3 times of his son's age. After 9 years it will be twice the age of his son. The present age of father and son is:

a) 48 and 20

b) 51 and 21

c) 54 and 22

d) 57 and 23

Solution ➜ https://www.youtube.com/watch?v=MaV4u-Bdp5I&t=1402s
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2.19) Father age 3 times of son's age 5 year ago. After 7 year father age is twice as son age. Calculate the present age of both?

a) (7, 31)

b) (5,35)

c) (17,41)

d) (15,45)

2.20) Seven years ago the age of a father was thrice of his son. After 7 years the age of the father will be twice that of his son. The present ages of the father and the son are?

a) (69,23)

b) (85,39)

c) (78,32)

d) None of these

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2.21) Identify the equation of straight line.

- a) $4x^2 + 3y = 18$
- b) $4x + 3y^2 = 18$
- c) $4x + 3y = 18$
- d) $4x^2 + 3y^3 = 18$

2.22) Which of the following statements is correct in respect of the equation? X+2Y+3=0

- a) The value of the intercept on the y-axis is 2
- b) The value of the intercept on x-axis is –3
- c) The slope of the line is 2.5
- d) The degree of the equation is 2

2.23) Which of the following statements is correct in respect of the equation? X+2Y+3=0

- a) The value of the intercept on the y-axis is 3
- b) The value of the intercept on x-axis is –3
- c) The slope of the line is 1
- d) The degree of the equation is 0

2.24) Which set of a point satisfy the equation y - 2x = - 4

- a) (6,-5)
- b) (5,6)
- c) (2,5)
- d) (2,2)

2.25) Which of the following value of x will satisfy the equation $3^{2x-2} = \sqrt[3]{2}$

- a) 1.09
- b) 1.510
- c) 1.751
- d) 2.015

2.26) Which of the following values of x will satisfy the equation? $X + 10 = 11x^2 - x+1$

- a) 1 and 0.818
- b) – 1 and –0.818
- c) 1 and –0.818
- d) –1 and 0.818

2.27) Which of the following values of x will satisfy the equation? $3X + 10 = 10x^2 + 2x-1$

- a) 1 and -1.1
- b) – 1 and 1.1
- c) 1 and 1.1
- d) -1 and -1.1

2.28) Which of the following statements is correct for the equation $3x^2 + 5x - 9$?

- a) Coefficient of x is 2
- b) Constant = -9
- c) The equation contains two variables
- d) It is a linear equation

2.29) Which of the following equation is not linear?

- a) $Y = 2x - 5$
- b) $X - \frac{y}{5} + 20$
- c) $Y = 2x^2$
- d) $X + 9 = 0$

2.30) There is a two digit number and 4 times the sum of its digits and 12 times the difference of its digits makes the number. If the number is xy. Which of the following will give the number after simultaneous solution?

    a)   xy + 4y = 4x, 12x = xy +12y

    b)   xy − 4x = -4y, 12x + xy = 12y

    c)   xy − 4y = 4x, xy + 12y = 12x

    d)   None of these

2.31) Simplify $x + 10 = 11x^2 - x + 1$

    a)   1 & 0.8181

    b)   -1 & -0.8181

    c)   1 & -0.8181

    d)   -1 & 0.8181

2.32) Which one is not a quadratic equation?

    a) $3x + 4 = 7$

    b) $2x^2 = 9$

    c) $9x^2 + 2x = -3$

    d) $5x^2 + 8x = 9$

2.33) Sum of thrice of Arif and twice of Ali is 18000 and difference of thrice of Arif and twice of Ali is 15000. How much amount Arif and Ali have?

    a)   5500, 750

    b)   3000, 750

    c)   4500, 750

    d)   2500, 750

Chapter-03
MATHEMATICAL PROGRESSION

3.1) The sum of the three numbers in A.P is 21 and the product of the first and third number of the sequence is 45. What are the three numbers?

   a)   4,6,11   b)   5,9,7

   c)   5,7,9   d)   3,5,9

3.2) Mr Adeel saved Rs.x in January,. Then each subsequent month he saved Rs.100 more than the previous month. If his total savings at the end of December stood at Rs.16,200 how much did he save in January?

   a)   700   b)   800

   c)   900   d)   1000

Solution https://youtu.be/tlR9FNPft3g
(Video name: <u>Question (Mathematical Progression)</u>)
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3.3) Ali receives a total of Rs.288000 in two years in the form of monthly installments. If he receives 1000 more than the previous month calculate the first installment?

   a)   7500   b)   6500

   c)   500   d)   None of these

3.4) XYZ and Company has developed a new product which would earn a revenue of Rs 90 million during the first year. Thereafter, the revenue would decline by 10% each year. Calculate the revenue that the company would be able to earn over the life of the product.

   a)   450 million   b)   500 million

   c)   900 million   d)   1 billion

Solution https://youtu.be/tlR9FNPft3g
(Video name: <u>Question (Mathematical Progression)</u>)
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3.5) Awan and Company has developed a new product which would earn a revenue of Rs. 90 million during the first year. Thereafter the revenue would decline by 30% each year. Calculate the revenue that the company would be able to earn over the life of the period.

    a) Rs. 800 million   b) Rs. 600 million

    c) Rs. 300 million   d) Rs. 129 million

3.6) Find the 15th term of the Geometric progression, 3, 6, 12, 24, ... 12,288

    a) 49,152   b) 39,152

    c) 29,152   d) 8,304

3.7) A person has monthly income of Rs.1000 and his income increase by Rs.50 of the previous month income. On which term his total salary will exceed 100,000.

    a) 47th b) 49th

    c) 50th d) 45th

3.8) Which of the following pairs of values cannot form part of a Geometric Progression?

    a) (6 and -6)   b) $\sqrt{5} + 1/\sqrt{7}$

    c) 1,000,000 and 0   d) All of the above

3.9) The sum of all odd numbers between 150 and 300 is:

    a) 14,875   b) 13,875

    c) 16,875   d) 12,578

3.10) Borrowed amount Rs.1,500,000 and returned 80,000 in the first year. In each upcoming year he returned 1.2 times of the previous year. In which year will he be able to return the loan

    a) 8th b) 9th

    c) 10th d) 11th

Solution https://youtu.be/tIR9FNPft3g
(Video name: Question (Mathematical Progression))
Scan this QR for Complete solution

3.11) If Ahmad save 1000 in the first month and 500 more every month, how much time he need to save Rs.45000?

    a) 9   b) 8

    c) 12   d) 6

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3.12) Ali has to pay Rs. 1500000 in installments. If he pay the first installment of Rs. 80000 and increase every installment by 1.2, then in which year he will pay the amount?

    a)   8th   b)   9th

    c)   10th   d)   11th

3.13) If Matti save Rs. 426000 monthly in two years. If he saves 500 in first month and increase by x every month. Find the amount of last installment.

    a)   40000   b)   35000

    c)   36000   d)   33000

3.14) Basheer saves Rs. 105000 in one year. If his first installment was Rs. 500, how much more Rs.X will be added monthly to accumulate the amount?

    a)   500   b)   1000

    c)   1500   d)   2000

Chapter-04
Linear Programming

4.1) If the objective function is Z = 1500x + 2000y then optimum solution is
a) (0,16)
b) (8,12)
c) (14,7)
d) (16,0)

4.2) If $3x + 7 \geq x + 5 \geq 5x - 3$, then the inequality holds when x lies in the range:
a) $7 \leq x \leq -3$
b) $5 \geq x \geq 7$
c) $3 \leq x \leq 5$
d) $2 \leq x \leq -1$

4.3) If $3x + 7 \leq 5x - 3$, then the inequality holds when x is:
a) Less than or equal to 7
b) Greater than or equal to 5
c) Less than or equal to 5
d) Greater than or equal to 2

4.4) What are the relevant constraints for this graph?
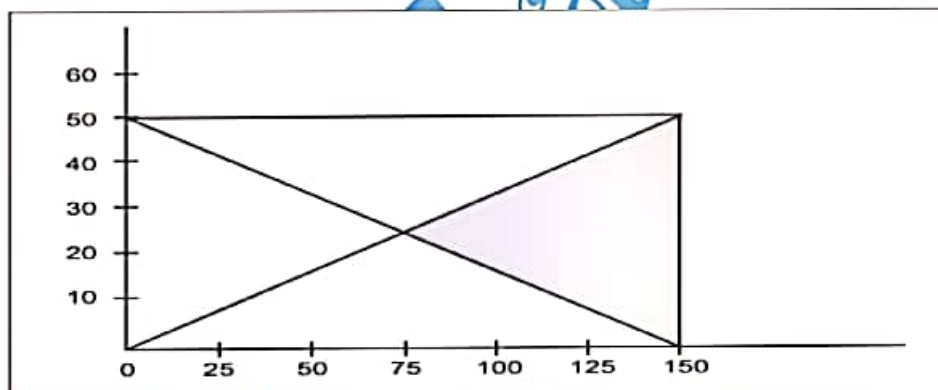
a) $x - 3y \geq 0$
$x + 3y > 150$
$y < 50$
$x \leq 150$ where x, y > 0

b) $x + 3y \leq 0$
$x + 3y \geq 150$
$y \leq 50$
$x \leq 150$ where x, y > 0

c) $x - 3y \geq 0$
$x + 3y \geq 150$
$y \leq 50$
$x \leq 150$ where x, y > 0

d) $x - 3y < 0$
$x + 3y > 150$
$y < 50$
$x \leq 150$ where x, y > 0

4.5) A Manufacturer produce two products P and Q which must pass through the same processes in department A and B having weekly production capacities of 240 hours and 100 hours respectively. product P needs 4 hours in department A and 2 hours in department B. Product Q requires 3 hours and 1 hours respectively in department A and B. Profit yield for product P is Rs.700 and Q is Rs.500. The manufacturer wants to maximize the profit with the given set of inequalities.

The objective function and all the constraints are:

a) $Z=700x+500y$ $2x+3y\leq240,$ $4x+3Y\leq240$ $X,y\geq0$	b) $Z=700x+500Y$ $4x+3y$ ≤240 $2x+y\leq100$ $X,y\geq0$
c) $Z=700x+500Y$ $4x+3y$ ≤240 $2x+y\leq100$	d) None of these

4.6) Find the maximum profit if $P = 250x + 375y$
Constraints are:
$$4x + 2y \leq 25000$$
$$3x + 2y \leq 20000$$
$$x,y \geq 0$$

a) 2187500   b) 3750000

c) 1250000   d) None of these

4.7) A company makes and sell two products X and Y. The related information is as follows:

	X	Y
Contribution per unit	375	250
Maximum sales demand per unit	6,000	9,000
Direct labour hours per unit	1	2
Machine hours per unit	3	4

A total of 10,000 direct labour hours and 22,000 machine hours are available per month. Which of the following objective function (Z) and set of constraints represent the above situation?

Z = 375x + 250y	X + 2y ≤ 10,000	3X + 4y ≤ 22,000
X ≤ 6,000	y ≤ 9,000	x,y ≥ 0

Z = 375x + 250y	X + 3y ≤ 10,000	2X + 4y ≤ 22,000
X ≤ 6,000	y ≤ 9,000	x,y ≥ 0

Z = 375x + 250y	X + 3y ≥ 10,000	2X + 4y ≥ 22,000
X ≤ 6,000	y ≤ 9,000	x,y ≥ 0

Z = 375x + 250y	X + 3y ≤ 10,000	2X + 4y ≤ 22,000
X ≥ 6,000	y ≥ 9,000	x,y ≥ 0

4.8) Find constraints from following data:

	X	Y
Contribution per unit	150	300
Maximum sales demand per unit	5,000	3,700
Direct labour hours per unit	3	1
Machine hours per unit	2	1

Maximum Direct labour available is 18000 hours
Maximum Machine hours available is 24000 hours

a)   150x + 300y
     3x + y ≤ 18000
     2x + y ≤ 24000
     x , y ≤ 0

b)   150 x + 300y
     3x + 2y ≤ 18000
     x + y ≤ 24000
     x , y ≥ 0

c)   150x + 300y
     3x + y ≥ 18000
     2x + y ≤ 24000
     x , y ≥ 0

d)   150 x + 300y
     3x + y ≤ 18000
     2x + y ≤ 24000
     x , y ≥ 0

4.9) A company owns a machine which runs for 208 hours a month. The machine is used to make two parts X and Y. each part X takes 1 hour of machine time and each part Y takes 2 hours of machine time. If x represents the number of part X made in a month and y represents the number of part Y made in a month, which of the following statements/ inequalities is correct?

a) The company could make any quantity of X and Y but the total machine hours in a month cannot exceed 208.
b) x+2y < 208 represents the boundary of maximum production in a month
c) y ≤ 208 if x=0, represents the maximum production of Y in a month
d) both (a) and (b)

4.10) A company produces two products X and Y. Each product passes through machine M1 and M2 which have a capacity of 2000 hours and 1500 hours respectively. Product X requires 3 hour on Machine M1 and 4 hours on Machine M2. Product Y requires * hours on machine M1 and 4 hours on Machine M2. The profit margin on X and Y is Rs. 500 and Rs. 600 respectively. Construct the function relating to the above situation.

a) 2000 M1 + 1500 M2   b) 222.22 X + 187.5 Y

c) 500 X + 600 Y   d) 600 X + 500 Y

4.11) A factory produces two products X and Y. Each product passes through two departments A and B which have a capacity of 1100 hours and 1400 hours respectively. Product X requires 4 hour on departments A and 5 hours on departments B. Product Y requires 7 hours on departments A and 8 hours on departments B. The profit margin on X and Y is Rs. 500 and Rs. 700 respectively. Construct the function relating to the given situation will be:

a) 1100x + 1400 y   b) 500x + 700 y

c) 600x + 700 y   d) 660000x + 980000 y

4.12) A factory produces two products x and y. Each product passes through two departments A and B which have a capacity of 1120 hours and 1400 hours The Product X requires 4 hours in department A and 7 hours in department B, the product Y requires 5 hours in department A and 8 hours in department B. The constraints representing the above data:

a) $4x+5y \leq 1120$ and $7x+8y \leq 1400$ b) $4x+7y \leq 14000$ and $5x+8y \leq 1120$

c) $7x+5y \leq 1400$ and $8x+4y \leq 1120$ d) $7x+8y \leq 1120$ and $4x+5y \leq 1400$

4.13) A company earns profit of Rs 250 and Rs 375 per unit on product X and Y respectively. Find the maximum profit that the company could earn if the company is subject to the following constraints:
$4x+2y \leq 25,000$
$3x+2y \leq 20,000$

a) Rs 1,666,667   b) Rs 2,187,500

c) Rs 3,750,000   d) Rs 4,687,500

4.14) A company makes and sells two products X and Y. the contribution per unit is Rs 250 for product X and 375 for product Y. due to various constraints, the company cannot make more than 750 units of X and 500 units of Y in a month. If x represents the number of product X, y represents the number opf product Y and C represents contribution, which of the following relationship represents maximum contribution?

a) C = 250x + 375y   b) C = 750x + 500y

c) C = 500x + 125y   d) C = 3x + 1.33y

4.15)

Which of the following set of constraints is represented by the above graph?

x + 2y ≤ 300	3x + 4y ≤ 500	x ≤ 150
y ≤ 125	x ≥ 0	y ≥ 0
x + 3y ≤ 500	2x + 4y ≤ 300	x ≤ 150
y ≤ 125	x ≥ 0	y ≥ 0
x + 3y ≤ 300	2x + 4y ≤ 500	x ≤ 125
y ≤ 125	x ≥ 0	y ≥ 0
x + 3y ≤ 300	2x + 4y ≤ 500	x ≤ 150
y ≤ 125	x ≥ 0	y ≥ 0

4.16) Which of the following constraints is shown?
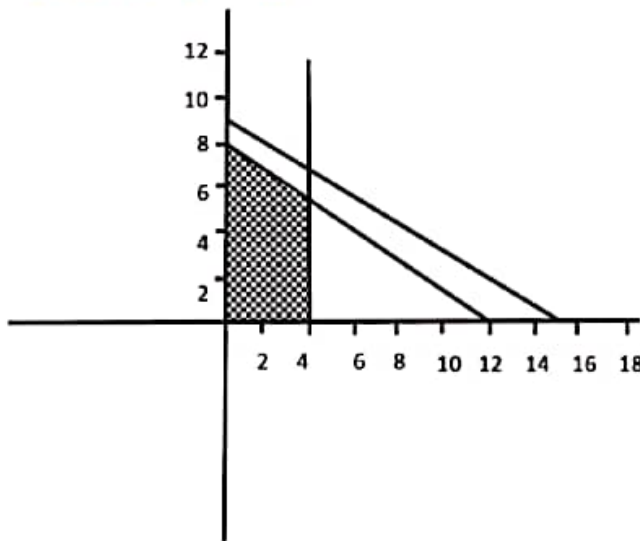
a) $10x + 4y \leq 24$
    $3x + 5y \leq 45$
    $x \leq 4$
    $x, y \leq 0$

b) $2x + 3y \leq 24$
    $3x + 5y \leq 45$
    $x \leq 4$
    $x, y \leq 0$

c) $2x + 3y \geq 24$
    $15x + 9y \leq 45$
    $x \leq 4$
    $x, y \geq 0$

d) $2x + 3y \geq 24$
    $3x + 5y \geq 45$
    $x \leq 4$
    $x, y \geq 0$

4.17)   A company earns a contribution of Rs.12000 and Rs.15000 per unit on product X and Y respectively.

	X	Y	Availability
Labour hours	6	5	15,000 hours
Machine hours	8	15	21,000 hours
Material (kg)	5	8	14,000 kg

Identify the objective function and the constraints assuming that an order for 200 units of X and 300 units for Y has already been confirmed.

$Z = 12000x + 15000y$	$6x + 5y \leq 15000$	$8x + 15y \leq 21000$	$5x + 8y \leq 14000$

$Z = 11800x + 14700y$	$6x + 5y \leq 15000$	$8x + 15y \leq 21000$	$5x + 8y \leq 14000$

$Z = 12000x + 15000y$	$6x + 5y \leq 12,300$	$8x + 15y \leq 14,900$	$5x + 8y \leq 10600$

$Z = 12000x + 15000y$	$6x + 5y \leq 14500$	$8x + 15y \leq 20500$	$5x + 8y \leq 13500$

Chapter-5
TIME VALUE OF MONEY
(Simple & Compound Interest)

5.1) Baber borrowed Rs.900,000 at simple interest of 9.68% per annum. At the end of the loan period, he repaid a total of Rs.1,510,000. Period of the loan was:

   a)   5 years 9 months   b)   6 years

   c)   6 years 3 months   d)   7 years

5.2) Tahir took Rs.200,000 from the Bank @ 13.5% rate p.a. What is value of its sum after 5 years with simple interest?

   a)   Rs.335,000   b)   Rs.125,000

   c)   Rs.435,000   d)   Rs.225,000

5.3) The rate at which a sum becomes four times itself in 15 years at S.I will be ?

   a)   10%   b)   12%

   c)   20%   d)   15%

5.4) A certain sum of money lent out at Simple interest amount to Rs.690 in three years and Rs.750 in 5 years. The sum lent is...

   a)   Rs.500   b)   Rs.600

   c)   Rs.700   d)   Rs.800

5.5) A loan is borrowed of Rs.800,000 for 4 years and simple interest payable on loan is 650,000 find interest rate

   a)   15%   b)   12.3%

   c)   20.3%   d)   15.5%

5.6) Alia borrowed Rs. 700,000 from Sara for a period of 2 years and 3 months at r% simple interest. She paid a total of 950,000 at the end of loan period. the value of "r" is

   a)   14.29%   b)   15.53%

   c)   15.87%   d)   17.86%

5.7) Rani borrowed Rs.500,000 at 8% simple interest from Mani for a period of 3 years and 3 months. How much would Rani be required to pay at the end of loan period?

   a)   Rs. 630,000   b)   Rs. 690,500

   c)   Rs. 762,000   d)   Rs. 775,500

5.8) Nisar took Rs. 900,000 from his office at 13.5% simple interest for a period of 5 years and 5 months. Which of the following amount would be paid as Interest?

   a)   Rs. 585,000   b)   Rs. 607,500

   c)   Rs. 633,750   d)   Rs. 658,125

5.9) Mr. Shahid invested Rs.300,000 and will receive Rs.500,000 after 7 years. If the interest rate is 8% compounded bi-monthly for last 3 years then what will be the interest rate of first four years compounded bi-monthly?

    a)   6.84%   b)   7.28%

    c)   5.28%   d)   8%

5.10) Given Nominal rate is 10% compounded monthly, find effective rate =?

    a)   11.47%   b)   09.47%

    c)   12.47%   d)   10.47%

5.11) How much would Akram invest to get 10 million after 10 years if rate is 2.1% compounded per year?

    a)   8.37 million approx.   b)   8.36 million approx.

    c)   8.12 million approx.   d)   None of these

5.12) If Rs.1000 is invested yearly for 3 years @ 7% compounded annually. Find the amount invested for the next 2 years at 5% compounded annually, if Rs.500,000 received at the end of 5th year.

    a)   Rs.212173.45   b)   Rs.242173.45

    c)   Rs.202173.45   d)   Rs.302173.45

5.13) Hayyan invested Rs.400,000 in an investment scheme and got Rs.545,881 at the end of three years Find effective rate, if interest was compounded monthly

    a)   10%   b)   10.92%

    c)   11.25%   d)   9.92%

5.14) Mr.A invest of Rs.10,000 at the rate of 4% per annum compounded quarterly will mature at the end of 5th year. Find the amount.

    a)   Rs.12,000   b)   Rs.132,02

    c)   Rs.12,202   d)   Rs.15,302

5.15) Meena has invested Rs.700,000 in an investment scheme. In return, she would receive Rs.74,587 semi-annually in arrears, for the six years. She would not receive any amount afterwards. Find the nominal and effective rate of return of the scheme.

    a)   8% and 8.16%   b)   8% and 9.16%

    c)   8% and 10.16%   d)   7% and 7.16%

5.16) The present value of an amount to be received after 7 years at a discount rate of 7% is 'X'. What would be the present value if the same amount is received after 5 years?

    a)   1.14x   b)   1.1449x

    c)   1.449x   d) $\sqrt[x]{1.1449}$

5.17) Bank B is offering interest @ 15% compound semiannually to all investments made with that bank, Bank D is entering the market and want to attract the investors it has also decided to give interest on monthly compounding at least what rate of interest should be offered to attract investors from Bank B.

a) 14.60% b) 13.06%

c) 12.05% d) 10.25%

5.18) A person makes investment of Rs.8,000 now and in next two years at 10% compounded annually find his total investment at end of three years

a) Rs.29,000 b) Rs.28,000

c) Rs.27,500 d) Rs.27,000

5.19) Mr. Akbar intends to create an endowment fund to provide for a yearly pension of Rs.4,000 every year. If the fund is invested in high yielding securities at 7.5% compound interest, the amount of endowment will be

a) 43,333 b) 35,333

c) 53,333 d) 33,333

5.20) A person deposited Rs.600,000 in a bank@9% simple interest for 3 years and 3 months. Calculate the amount of money he received at the end of period:

a) Rs.665,500 b) Rs.550,000

c) Rs.775,500 d) Rs.770,500

5.21) If Rs.200,000 is to grow to Rs.649,464 in ten years' period, at what annual interest rate must it be invested, what is the effective rate of interest is compounded semi-annually?

a) 12.89% b) 17.5%

c) 15% d) 20%

5.22) If nominal interest rate is 8% compounded quarterly, find compounded monthly rate

a) 5.25% b) 6.25%

c) 4.25% d) 7.95%

5.23) A person made an investment of Rs 900,000 and received Rs 750,000 more after 4 years and 10 months find rate compounded annually?

a) 11.25% b) 13.36%

c) 14.25% d) 12.95%

5.24) Saad borrowed Rs 600,000 from Fahad for a period of 3 years and 9 months at r% simple interest. He paid Rs 400,000 in excess of the borrowed amount at the end of loan period. The value of "r" is:

a)   22.22%   b)   17.78%

c)   17.09%   d)   16.67%

5.25) Saeed invested Rs 400,000 for ten years after which he received a lump sum amount of Rs 900,000. If he earned 8.50% interest compounded quarterly during last five years which of the following rate compounded quarterly did he earn during first five years

a)   7.89%   b)   8.25%

c)   8.39%   d)   8.50%

5.26) Anees invested Rs. 500,000 for 6 years after which he received a lump sum amount of Rs. 822,531. If he earned 10% interest compounded annually during last four years, what rate of interest compounded annually did he earn during first two years?

a)   6%   b)   7%

c)   8%   d)   9%

5.27) An investor places Rs 8,000 into an investment for ten years. The compound rate of interest earned is 8% for first four years and 12% for the last 6 years. At the end of the ten years the investment (to the nearest Rs) is worth.

a)   Rs.25,933   b)   Rs.17,829

c)   Rs.20,631   d)   Rs.21,483

5.28) A bank offers to pay 500,000 after 8 years if interest rate is 9% compounded annually then value of money to be paid to bank today will be?

a)   Rs.250,933   b)   Rs.347,829

c)   Rs.217,631   d)   Rs.360,498

5.29) A bank is planning to offer a unique product to its customers whereby it would pay Rs 250,000 per annum for an indefinite period commencing from the end of year 6. How much amount should the bank ask its customers to pay now, if the rate of interest that the bank can pay, is 5% compounded annually?

a)   Rs.3,191,221   b)   Rs.3,547,829

c)   Rs.3,917,631   d)   Rs.3,960,498

5.30) How much would Kamran need to invest now in order to have Rs. 10 million after 10 years, if the annual interest on the investment is 7.2% compounded quarterly?

a)   Rs.4,247,239   b)   Rs.5,855,536

c)   Rs.4,898,791   d)   Rs.5,000,000

5.31) Rashid has savings of Rs.3.6 millions whereas Sajjad has savings of Rs.5.4 million. If Rashid invest his savings @ 9% compounded quarterly whereas Sajjad invest his savings at 7% compounded annually, in how many years would the value of Rashid's savings exceed that of Sajjad's savings.

  a) 9 years
  b) 14 years
  c) 19 years
  d) 24 years

  Solution https://www.youtube.com/watch?v=L8EUbiPVm5I
  Video name: Finance Part 01
  Scan this QR for Complete solution

5.32) Haroon has borrowed a certain amount at an interest of 12% compounded semi-annually. In how many years the amount owed would double?

  a) 3 years
  b) 5 years
  c) 6 years
  d) 8 years

5.33) If present value of a unpaid bill of Rs. 650,000 reaches to 1,060,000 in 6 years, and interest rate in last four year charged at the rate of 10% compounded annually. So what interest should charge in first 2 years compounded annually?

  a) 8.2%
  b) 5.54%
  c) 4%
  d) 7.24%

5.34) Faraz borrowed Rs.1000,000 at simple interest of 8.5% per annum. At the end of the loan period he repaid a total of Rs. 1,510,000. Period of the loan was:

  a) 5 years 9 months
  b) 6 years
  c) 6 years 3 months
  d) 7 years

5.35) Fahad is receiving interest from Doller bank limited (DBL) at 15% compounded semi-annually. Each bank limited (EBL) has introduced a scheme whereby interest would be compounded on a monthly basis. The minimum rate of interest that EBL should offer to motivate Fahad shift his investment from DBL to EBL is:

  a) 14.06%
  b) 14.55%
  c) 15.00%
  d) 15.01%

5.36) Tom and Jerry both invested same amount for 8 years. If Tom's rate of return is 9% and Jerry's rate is 10% compounded annually then how much more percent amount Jerry will have after 8 years than Tom?

  a) 1%
  b) 8%
  c) 15.1%
  d) None of these

5.37) If Naina and Maina both invested same amount for 6 years and the rate of interest are 9% and 10% compounded annually respectively. Then how much more percent amount Maina will have after 6 years than Naina?

    a) 1%   b) 8%

    c) 9.45%   d) None of these

5.38) John and Johnson have invested same amounts in two different investment schemes. John is getting a return of 9% compounded annually whereas Johnson gets a return of 10% compounded annually, the amount of Johnson's interest over a period of six years would exceed the amount of John's interest by

    a) 9.44%   b) 5.63%

    c) 31.47%   d) 13.95%

5.39) Ali and Kashif invested equal sum in two different banks at 9% and 10% interest compounded annually. In 6 years how much percent of sum will Kashif earn more than Ali?

    a) 9.45%   b) 8.45%

    c) 7.45%   d) 6%

5.40) A person wants to invest some money for 6 years. He is offered four different interests. Which one is better?

    a) 15% simple interest   b) 10% compounded annually

    c) 9% compounded semi-annually   d) 8% compounded monthly

5.41) An investment of 1.5 million is made in a business for 4 years and gain is 0.5 million . Find rate of gain under compound interest?

    a) 6.54%   b) 8.5%

    c) 7.45%   d) 9.4%

5.42) If Present value is 1000000 and interest is 750000 in 4 years and 10 months. Find the simple interest rate?

    a) 15.51%   b) 5.17%

    c) 7.75%   d) None of these

5.43) Ali invests Rs.2 million and get 0.5 million at redemption. If n = 4, which is best?

    a) 7.15% monthly   b) 7.23% bi-monthly

    c) 8.1% simple interest   d) 7.51% quarterly

5.44) Eram invested Rs.2m and received Rs.2.5m after 3 years. Calculate the rate of interest?

    a) 7.51% compounded monthly   b) 7.51% compounded quarterly

    c) 7.51% compounded bi-monthly   d) 7.51% compounded annually

5.45) Kareem and Jaffer have invested same amounts in two different investment schemes. Karem is getting a return of 8% compounded annually whereas Jaffer gets a return of 10% compounded annually, the amount of Jaffer's interest over a period of six years would exceed the amount of Kareem's interest by

    a)   21.25%   b)   17.25%

    c)   31.47%   d)   8.54%

5.46) A person invested some amount today @1.8% per quarter for 10 years find his investment if he receives Rs 10 million

    a)   3.126 million   b)   5.13 million

    c)   4.899 million   d)   None of these

Chapter-6

DISCOUNTED CASH FLOWS: (Annuity, NPV & IRR)

6.1) Which of the following statement is CORRECT?
   a) Perpetuity is a special kind of annuity that never ends
   b) It is impossible to find the future value of perpetuity
   c) It is impossible to find the present value of perpetuity
   d) Both a and b

6.2) Which of the following statement is CORRECT?
   a) Discounting estimates the present-day equivalent of a future cash flow at a specified time in the future at a given rate of interest
   b) Multiplying by a discount factor is the same as multiplying by a compounding factor
   c) The present value of a cash flow is the recipient of its future value
   d) Present value fails to appraise large projects with multiple cash flows.

6.3) If interest rate = 8%, R = 2,500 Find present value of perpetuity
   a) Rs.312,500
   b) Rs.442,500
   c) Rs.500,500
   d) Rs.222,500

6.4) If R = 170,000, r = 8% compounding annually, Find the P.V at the end of 5th year =?
   a) Rs.5,635,373
   b) Rs.678,761
   c) Rs.363,537
   d) None

6.5) Find Perpetuity, R = 2500, r= 8% Compounding Quarterly.
   a) Rs.123,537
   b) Rs.563,537
   c) Rs.125,000
   d) Rs.433,537

6.6) If R= 3,000 for 3 years, r= 8% Compounding Monthly, Find present Value.
   a) Rs.83,537
   b) Rs.95,735
   c) Rs.72,537
   d) Rs.65,537

6.7) Asif plans to invest Rs 5000 every year starting from today for next 3 years. Interest rate is 10% per annum compounded annually. Future value of the annuity is:
   a) Rs 16,500
   b) Rs 17,050
   c) Rs 17,600
   d) Rs 18,205

6.8) Ali plans to invest Rs. 8,000 every year for 3 years starting from today. Interest rate is 10% per annum compounded annually. At the end of year 3 he will receive:
   a) Rs 26,480
   b) Rs 26,328
   c) Rs 29,128
   d) Rs 31,944

6.9) Find the present value of Annuity Due, if R= 9,000 for 4 years, r = 10% compounding yearly.
   a) Rs.31,381.67
   b) Rs.33,543.27
   c) Rs.223,537
   d) Rs.123,544

6.10) An amount of Rs. 3000 is due in 5 years from now. If the interest rate is 6% compounded semi- annually, what is the present value?
   a) 1822.32
   b) 2232.28
   c) 2032.18
   d) 2432.28

6.11) If discount rate is 9% then the present value of Rs. 'X' received at the end of each year for the next five years is equal to?
   a) 3.89x
   b) 4.24x
   c) 4.45
   d) 5x

6.12) If discount rate is 10% then the present value of Rs X payable annually for 4 years is?
   a) 4.17x
   b) 3.17x
   c) 6.25x
   d) 5.25x

6.13) If the discount rate is 11%, the present value of Rs X received at the end of each year for the next five years is equal to:
   a) 3.17X
   b) 4.10X
   c) 3.7X
   d) 5X

6.14) Calculate the present value of X at the rate of 8% compounded annually received at the end of every year for 4 years?
   a) 2.2x
   b) 3.31X
   c) 1.2x
   d) None

6.15) If the discount rate is 13%, The present value of Rs. X received at the end of each year for the next four years is equal to:
   a) 2.97x
   b) 3.16x
   c) 3.6x
   d) 4.03x

6.16) If interest rate is 9% compounding monthly, regular payment R= 3,000 find perpetuity
   a) Rs.300,000
   b) Rs.400,000
   c) Rs.250,500
   d) Rs.550,000

6.17) Mr.A invested 200,000 in an account today. He also deposits 20,000 Quarterly in this account and made first payment today. If the interest is 8% compound quarterly. What will be value after 5 Years.

BY: HM Hasnan [CFM (UK), CFMA, MA (Eco)]

a) Rs.622,855

b) Rs.222,855

c) Rs.792,855

d) Rs.692,855

6.18) To increase Present value of project the discount rate should be adjusted

a) Upward or downward depending upon whether the required increase is less than or more than 10%

b) Upward or downward depending upon the project duration

c) Downward

d) Upward

6.19) Mr. Rafi intends to create an endowment fund to provide for a yearly pension of Rs. 5000 every year. If the fund is invested in high yielding securities at 12.5% compound interest, the amount of endowment fund will be:

a) Rs.35,000

b) Rs.22,855

c) Rs.38,000

d) Rs.40,000

6.20) A person invests 500,000 now and 20,000 every year at 10% per annum. Find the total amount after 10 years.

a) Rs.1,406,115

b) Rs.1,615,619

c) Rs.1,507,000

d) Rs.1,406,500

6.21) Saleem borrowed Rs. 500,000 from a bank at simple interest of 2% per month for a period of 3 years. The principal is payable in equal monthly installments, along with interest. Which of the following statements is correct?

a) His monthly installment would be Rs. 23,000

b) He would pay Rs. 100,000 per annum in interest

c) He would have paid an additional amount of Rs. 300,000 by the end of 3 years

d) At the end of year 1, his balance principal amount would be Rs. 333,333.33

Solution   https://www.youtube.com/watch?v=L8EUbiPVm5I
Video name: Finance Part 01
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6.22) What are the qualities of perpetuity?

a) used to find purchase price of share

b) used to find value of maintenance fund

c) Used to find initial deposit required for pension scheme

d) All of these

6.23) From perpetuity we cannot find

a) Present Value

b) Future value

c) Both

d) None of these

6.24) A bank launched a new scheme where it offers 8000 per year for indefinite time after 8 years. How much amount should bank require to collect from customer today if it offers 8% interest compounded annually?

a) 54027

b) 100000

c) 63017

d) 58349

6.25) Ashfaq is planning to invest in a scheme whereby he would be required to invest Rs 130,000 annually (at the start of the year) for 5 years. If the interest rate is 13% compounded annually, what amount would he receive at the end of the 5th year?

a) Rs 842,435

b) Rs 951,952

c) Rs 964,952

d) Rs 1,075,706

6.26) Imad is planning to invest in a scheme whereby he would be required to invest Rs 150,000 annually (at the start of the year) for 5 years. If the interest rate is 7% compounded annually, what amount would he receive at the end of the 5th year?

a) Rs 922,994

b) Rs 802,500

c) Rs 642,000

d) Rs 862,611

6.27) If the rate of interest is 9% per annum compounded monthly, the value of perpetuity of Rs 3,000 per month would be:

a) Rs. 400,000

b) Rs. 300,000

c) Rs. 270,000

d) Rs. 360,000

6.28) If the rate of interest is 9% per annum compounded monthly, the value of perpetuity of Rs 3,200 per month would be:

a) Rs. 426,667

b) Rs. 487,500

c) Rs. 458,000

d) Rs. 35,556

6.29) If the rate of interest is 8% per annum compounded monthly, the value of perpetuity of Rs 2,500 per month would be:

a) Rs. 375,000

b) Rs. 187,500

c) Rs. 37,500

d) Rs. 31,250

6.30) Ali purchased a new car and made a down payment of Rs. 50,000. He is further required to pay Rs. 30,000 at the end of each quarter for five years. The cash purchase price of the car, if the quarterly payment include 12% interest compounded quarterly is

a) Rs 131,250

b) Rs 496,324

c) Rs 262,500

d) Rs 525,000

BY: HM Hasnan [CFM (UK), CFMA, MA (Eco)]

6.31) Raza wants to save money over a period of ten years in order to meet the expenses to be incurred on higher education of his son. He has recently invested a sum of Rs 200,000 and plans to further invest Rs 20,000 at the end of each quarter, which of the following amount will be available to him at the end of 10th year if he earns a profit of 6% per annum compounded quarterly?

a) Rs 1,448,161.56
b) Rs 1,321,027.61
c) Rs 992,497.74
d) Rs 718,018.61

6.32) Government has issued a five years bond of Rs.200,000. On maturity the buyer will get Rs.300,000. If the current interest rate is 8% per annum, is purchasing the bond worth?

a) Yes, as present value of Rs.300,000 is π than Rs.200,000
b) No, as present value of Rs.300,000 is more than Rs.200,000
c) Yes, as present value of Rs.300,000 is less than Rs.200,000
d) No, as future value of Rs.200,000 is more than Rs.300,000

6.33) Salma would require a sum of Rs. 300,000 after three years from now and a sum of Rs. 500,000 after five years from now, for the purpose of education of her son. She is planning to deposit quarterly amounts in a bank account from which she would draw the desired amounts at the required time. If the rate of interest is 12% Compounded quarterly, which of the following amounts should Salma deposits at the START of each quarter?

a) Rs 76,766
b) Rs 74,530
c) Rs 31,797
d) Rs 32,751

Solution   https://www.youtube.com/watch?v=L8EUbiPVm5I
Video name: Finance Part 01
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6.34) Project A would provide annual inflows of Rs. 525,000 Rs. 648,000, Rs 853,000 and Rs 2,844,000 at the end of year 1 to 4 respectively, whereas project B would yield annual inflows of Rs 947,000, Rs 1,155,000 and Rs 2,068,000 from year 1 to 3 respectively. The discount rate at which both projects would have same net present value is:

a) 18.27%
b) 18.83%
c) 19.31%
d) 19.73%

6.35) A bank launched a new scheme where it offers 400000 per year for indefinite time after 8 years. How much amount should bank require to collect from customer today if it offers 5% interest compounded annually?

a) 8 million
b) 5.69 million
c) 5.41 million
d) 5.6 million

6.36) If the discount rate is 12%, The present value of Rs. X received at the end of each year for the next five years is equal to:

a) 6x

b) 5x

c) 3.6x

d) 4.03x

6.37) Find the value invested now, if he received 8000 at the end of each year from year 4 to year 12 at the rate of 11% compounded annually?

a) 51,939

b) 32,389

c) 27,119

d) 57,652

6.38) Two companies made profits from investments in different projects:

	Year 1	Year 2	Year 3	Year 4
Company A	900,000	600,000	300,000	900,000
Company B	1,200,000	800,000	400,000	

Find the rate at which NPV of both companies will be same.

a) 29.37%

b) 18.58%

c) 15.37%

d) 16.33%

6.39) A company intends to invest Rs 3 million into a project which would yield 10,12 and 14 percent during three years respectively. The company would also recover the original investment after 3 years. If the company's cost of capital is 10%, the NPV of the project is:

a) Rs 139,745

b) Rs 46,582

c) Rs 1,046,582

d) Rs 3,139,745

Solution https://www.youtube.com/watch?v=L8EUbIPVm5I
Video name: Finance Part 01
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6.40) A company intends to invest Rs 3 million into a project which would yield 10,12 and 14 percent during three years respectively. The company would also recover the original investment after 3 years. If the company's cost of capital is 8%, the NPV of the project is:

a) Rs 277,778

b) Rs 301,326

c) Rs 333,410

d) Rs 919,830

6.41) A company invested 4 million. Interest rate was 10%, 12% and 14% per year for first, second and third year respectively. Find NPV if cost of capital is 12%
- a) 0.15 million
- b) 0.1563 million
- c) 0.2329 million
- d) (0.0144) million

6.42) A company invested 4 million. Interest rate was 10%, 12% and 13% per year for first, second and third year respectively. Find NPV if cost of capital is 10%
- a) 0.15 million
- b) 0.1563 million
- c) 0.2329 million
- d) None of these

6.43) A company invested 9 million. Interest rate was 8%, 12% and 14% per year for first, second and third year respectively. Find NPV if cost of capital is 9%
- a) 0.15 million
- b) 0.1563 million
- c) 0.4922 million
- d) None of these

6.44) A company invested 5 million. Interest rate was 12%, 14% and 16% per year for first, second and third year respectively. Find NPV if cost of capital is 10%
- a) 0.15 million
- b) 0.1563 million
- c) 0.2329 million
- d) 0.4816 million

6.45) Cash outflow = 3.0 million, Cash inflow = 1.0 m (1st year) 0.25 million (2nd) and 2.25 million (3rd year). Find IRR
- a) 2.876%
- b) 5.897%
- c) 8.746%
- d) 6.845%

6.46) 2.5 million cash outflows: cash Inflows of year 1, 2 and 3 are 2 million, 2.9 million, 0.5 million respectively. Find IRR
- a) 7.38%
- b) 9.38%
- c) 60.2%
- d) 10.38%

6.47) A project costing Rs. 3 million is expected to generate cash Rs. 0.15 million Rs. 0.25 million and Rs. 3.35 million at the end of each of the next threes respectively. The IRR of the project is
- a) 15.27%
- b) 7.51%
- c) 14.01%
- d) 8.16%

6.48) A project costing Rs. 2 million expected to yield Rs. 100,000 Rs. 200,000 and Rs. 2,300,000 at the end of each of the next threes respectively. The IRR of the project is
- a) 6.7%
- b) 7.7%
- c) 8.7%
- d) 9.7%

[MATHS, Important Questions, KEY]
(BY: HM HASNAN) [CFM (UK), CFMA, MA (ECO)]

Chapter-1
Co-ordinate System & Equation of Straight Line:

4.1)	B	4.2)	B	4.3)	A	4.4)	C
4.5)	A	4.6)	A	4.7)	B	4.8)	A
4.9)	B	4.10)	D	4.11)	A	4.12)	B
4.13)	C	4.14)	D	4.15)	B		

Chapter-02
MATHEMATICAL & QUADRATIC EQUATIONS:

2.1)	C	2.2)	B	2.3)	C	2.4)	D
2.5)	D	2.6)	C	2.7)	A	2.8)	B
2.9)	D	2.10)	B	2.11)	B	2.12)	A
2.13)	A	2.14)	A	2.15)	B	2.16)	A
2.17)	C	2.18)	B	2.19)	C	2.20)	C
2.21)	C	2.22)	B	2.23)	B	2.24)	B
2.25)	A	2.26)	C	2.27)	B	2.28)	B
2.29)	C	2.30)	C	2.31)	C	2.32)	A
2.33)	A						

Chapter-03
MATHEMATICAL PROGRESSION

1.1)	C	1.2)	B	1.3)	C	1.4)	C
1.5)	C	1.6)	A	1.7)	A	1.8)	D
1.9)	C	1.10)	B	1.11)	C	1.12)	B
1.13)	B	1.14)	C				

Chapter-4
LINEAR PROGRAMMING:

4.1) B	4.2) D	4.3) B	4.4) C
4.5) B	4.6) B	4.7) A	4.8) D
4.9) A	4.10) C	4.11) B	4.12) A
4.13) C	4.14) A	4.15) D	4.16) B
4.17) A	4.18)	4.19)	4.20)

Chapter-5
TIME VALUE OF MONEY

5.1) D	5.2) A	5.3) C	5.4) B
5.5) C	5.6) C	5.7) A	5.8) D
5.9) A	5.10) D	5.11) C	5.12) B
5.13) B	5.14) C	5.15) A	5.16) B
5.17) A	5.18) A	5.19) C	5.20) C
5.21) A	5.22) D	5.23) B	5.24) B
5.25) A	5.26) A	5.27) D	5.28) A
5.29) C	5.30) C	5.31) C	5.32) C
5.33) B	5.34) B	5.35) B	5.36) C
5.37) C	5.38) D	5.39) A	5.40) A
5.41) C	5.42) A	5.43) D	5.44) B
5.45) C	5.46) C		

Chapter-6
DISCOUNTED CASH FLOWS
(Annuity, NPV & IRR)

5.1) D		**5.2)**	A	**5.3)**	A	**5.4)**	B
5.5)	C	**5.6)**	B	**5.7)**	D	**5.8)**	C
5.9)	A	**5.10)**	B	**5.11)**	A	**5.12)**	B
5.13)	C	**5.14)**	B	**5.15)**	A	**5.16)**	B
5.17)	C	**5.18)**	C	**5.19)**	D	**5.20)**	B
5.21)	D	**5.22)**	D	**5.23)**	B	**5.24)**	D
5.25)	B	**5.26)**	A	**5.27)**	A	**5.28)**	A
5.29)	A	**5.30)**	B	**5.31)**	A	**5.32)**	A
5.33)	C	**5.34)**	A	**5.35)**	B	**5.36)**	C
5.37)	B	**5.38)**	B	**5.39)**	A	**5.40)**	B
5.41)	D	**5.42)**	B	**5.43)**	C	**5.44)**	D
5.45)	D	**5.46)**	C	**5.47)**	D	**5.48)**	D

STATS

Chapter-07
Collection and Presentation of Data:

7.1) What is Raw data?
- a) Data often collected in large volumes
- b) Originally collected by investigator/ The data collected in surveys
- c) Unprocessed data/ Results of sampling enquiries or census.
- d) All of these

7.2) Which of the following is correct?
- a) The data which is collected specifically for ongoing investigation is called raw data
- b) Results of sampling enquiries or a census is called primary data
- c) The data which is relevant to the investigation but was collected previously for some other purpose is called secondary data
- d) Both (b) and (c)

7.3) Which of the following is correct?
- a) Results of sampling enquiries to a census is called raw data
- b) The data which is collected specifically for the ongoing investigation is called primary data
- c) The data which is stored after classification is called secondary data.
- d) Both (a) and (b)

7.4) The amount of milk produced by a Cow is:
- a) Quantitative variable
- b) Discrete variable
- c) Continuous variable
- d) Qualitative variable

7.5) Height of candidates in a school is
- a) Discrete variable
- b) Continuous variable
- c) Constant variable
- d) All of these

7.6) When data has an order it can be referred to as _____ [ordinal data.]

7.7) Data collected can contain multiple observations but would be particular to that point in time is called _____ [Cross-sectional data]

7.8) Which of the following is NOT the example of unstructured data? Select any TWO
- a) customer addresses
- b) Email messages
- c) survelliance videos
- d) product size

7.9) Which of the following is NOT the characteristic of good data.

a) Complete

b) Timely

c) Short

d) Reliable and consistent

7.10) The arrangement of data into classes according to the size and magnitude is

a) Frequency

b) Frequency distribution

c) Relative frequencies

d) All of these

7.11) Which of the following statement is true about continuous variable

a) Ages of students in a class

b) Ages of people in Pakistan

c) Height of all the students in world

d) ALL of these

7.12) Which of the following statements as regards Histogram is correct?

a) A vertical rectangle is drawn to represent each class of the frequency distribution

b) The frequency of the class is represented by the height of rectangles

c) Histogram cannot represent continuous data

d) Both (a) and (b)

7.13) Which of the following graph represent grouped frequency distribution?

a) Pie chart

b) Histogram

c) Simple bar chart

d) All of these

7.14) Ogive diagram is used for what?

a) Cumulative frequency distribution

b) Mid-points

c) Class limits

d) All of these

7.15) Which of the following statements is/are true about population?

(i) It is desired to consider all the population in an observation.

(ii) In an observation we consider all of the population.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

7.16) What are the specifications/characteristics of Ogive?

a) Cumulative frequency and C.B are used

b) Median, quartiles deciles & percentiles can be determined from Ogive

c) Both a & b

d) None of these

7.17) The median of a given frequency distribution is found graphically with the help of:
a) Histogram
b) Pie Chart
c) Frequency curve
d) Ogive

7.18) The graph obtained by joining the mid points of the tops of adjacent rectangles in histogram is called _____?
a) Histogram
b) Pie Chart
c) Frequency Ploygon
d) Ogive

7.19) Which of the following statements is correct?
a) Bar charts are usually used for plotting continuous data
b) Bar charts are usually used for plotting discrete data
c) Bar charts can be plotted horizontally or vertically.
d) Both (b) and (c)

7.20) Which of the following statements regarding Bar chart is correct?
a) Bar charts are usually used for plotting continuous data
b) Bar charts are usually used to compare things between different groups or to track changes over time
c) Bar charts are usually used for plotting vertical data only
d) In Bar chart, one axis represent first category and other axis represents second category being compared

7.21) Which of the following statements is correct?
a) An ogive is the graph of a cumulative frequency distribution
b) Median of a grouped frequency distribution can be found by constructing an Ogive
c) An Ogive is constructed by joining the mid points of the top of each rectangles of a histogram with straight lines
d) Both (a) and (b)

7.22) If peak of a histogram is at center and frequency is distributed evenly throughout data, then data is
a) Positively skewed
b) Negatively skewed
c) Normally distributed
d) None of these

7.23) Construction of a frequency distribution:
a) Is one of the most common means of summarizing data
b) Begins by recording the number of times a particular value occurs
c) Is the basis for construction of a percentage distribution
d) All of the above

7.24) Bar graph ?

a) Can be used for the continuous distribution

b) Can be vertical

c) Can be horizontal.

d) Both Vertical and Horizontal

7.25) Which of the following statements is/are correct?

(i) A grouped frequency distribution of discrete data has gaps between the classes.

(ii) Discrete data can be converted into continuous data.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

7.26) Which of the following statements is/are true about discrete data?

(i) There is no gap between them.

(ii) Mid-point is calculated by dividing the upper and lower limit in each class

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

7.27) Which of the following statements is/are correct?

(i) A grouped frequency distribution of discrete data has gaps between the classes.

(ii) In class boundaries, there is no gap between the classes.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

7.28) Which of the following statements is/are true about discrete data?

(i) There is gap between them.

(ii) Mid-point is calculated by dividing the upper and lower limit in each class

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

Chapter-08
Statistical Measures of Data:

8.1) Average means?
   a) Summarize the concentration of a set of data
   b) Measures the concentration of a set of data
   c) Measures the scatterdness of a set of data
   d) None of these

8.2) What is true about mean?
   (i) Most repeated value
   (ii) The best single figure to describe data
   a) Both statements are correct
   b) Both statements are not correct
   c) Only statement (i) is correct
   d) Only statement (ii) is correct

8.3) What is true about mean?
   a) Best average to describe data
   b) It is affected by extreme values
   c) Further algebraic manipulation is possible
   d) All of these

8.4) Consider the following statements about Mean.
   (i) It must be one of the values found in the data
   (ii) In case of ungroup data, there may be more than one mean.

   Which of the above statements is/are correct?
   a) Both statements are correct
   b) Both statements are not correct
   c) Only statement (i) is correct
   d) Only statement (ii) is correct

8.5) Which of the following is correct about Mean?
   a) It is the most frequently occurring figure
   b) It must be one of the values found in the data
   c) It is usually considered as the best single figure to represent the single figure to represent the data
   d) In case of ungrouped data, there may be more than one mean

8.6) Which of the following is/are True about mean?
   (i) The best single figure to describe data
   (ii) Percentile is a measure of dispersion.
   a) Both statements are correct
   b) Both statements are not correct
   c) Only statement (i) is correct
   d) Only statement (ii) is correct

8.7) Which of the following is correct about median

a) There can be more than one median in a data

b) Median will be affected by increase or decrease in extreme value

c) It divides the data in two equal parts in terms of values

d) None of these

8.8) Which of the following is correct about median

a) It is usually influenced by extreme value

b) It can be calculated by using Ogive

c) There may be more than one median

d) Both b and c

8.9) Which of the following is affected by change of origin as well as scale?

a) A.M

b) G.M

c) H.M

d) All of these

8.10) Which of the following statement is CORRECT about Median?

a) The upper quartile is also called the median

b) It is a measure of central tendency

c) It is the middle value no matter the data is arranged in any order

d) The position of the median can be found by using the expression $\frac{3(n+1)}{2}$

8.11) G.M can be located graphically by:

a) Histogram

b) Pie Chart

c) Frequency curve

d) None of these

8.12) Find empirical relationship between mean median and mode:

a) Mean = 3mode – 2 median

b) Mode = 3median - 2mean

c) Median = 3mode – 2 mean

d) Mode = median – 2 mean

8.13) Following data is related to salary of two managers

Weight	Salary M1	Salary M2
5	10,000	8,000
3	15,000	10,000
2	20,000	12,000
1	30,000	20,000

Find weighted arithmetic mean of both managers salaries;

a) A = 14,000, B = 10,364

b) A = 15,500, B = 10,363

c) A = 15,000, B = 10,364

d) None of these

8.14) The geometric mean of the following data is

Class Boundary	10 – 12	12 – 14	14 - 16	16 - 18	18 – 20
Frequency	14	26	42	30	8

a) 1.17   b) 14.53

c) 14.70   d) 14.87

8.15) Find harmonic mean of 78, 79, 80
a) 78.01   b) 79.01

c) 78.99   d) 78.5

8.16) Detail of leaves during 2008 by the top three students in a class is as follows:

Name of students	Ali	Asif	Anila
Number of leaves	7	5	3

Harmonic mean of the number of leaves taken by the above students is:
a) 5   b) 0.68

c) 0.20   d) 4.44

8.17) Arman got a rise of 12%, 20% and 18% in 2011, 2012 and 2013 respectively. The average annual increase rate is:
a) 16.5%   b) 16.62%

c) 17.1%   d) 17.33%

8.18) If a frequency distribution is skewed to the left (negatively skewed), then
a) Mean < median > mode   b) Mean > median > mode

c) Mode > median > Mean   d) Arithmetic mean < geometric mean < harmonic mean

8.19) A sample survey conducted by an organisation obtained the following data on the average number of items that persons in the various age group visit a physician each year:

Age Group (years)	Number of persons In the sample	Mean number of visits
Less than 5	50	2.1
5—20	115	1.6
21—60	155	2.6
61 and over	90	3.2

Calculate the mean number of visits to the physician:
a) 2.456   b) 2.656

c) 2.896   d) None of the above

8.20) Starting salaries of a group of fresh graduates is as follows:

65,000, 48,000, 49,000, 40,000, 58,000, 55,000, 60,000, and 62,000

Median of the above salaries is:
a) 58,000
b) 54,625
c) 56,500
d) 55,000

8.21) The following data shows the weight (in grams, round to the nearest gram) of 35 randomly picked oranges from a farm:

155	161	164	166	168	170	172	172	173	175
177	178	178	179	181	182	182	184	186	188
189	192	195	196	197	198	203	206	208	209
210	214	218	221	243					

The mean and median of the above data is:
a) 186.50 and 182
b) 184.50 and 183
c) 188.29 and 184
d) None of the above

8.22) Following data is given:
2, 10, 15, 25, 18, 3.5, 16, 45, 50, 25, 45, 40, 0.2, 40, 3, 42, 45, 13, 17, 18, 25, 15, 22, 23, 25, 39, 8, 12, 25, 16, 18, 40, 32, 3.5, 3, 3, 36, 29, 26, 22. Find mean and median

a) Mean = 21.25, median = 20
b) Mean = 20.12, median = 22
c) Mean = 22.38, median = 22
d) Mean = .12, median = 18

8.23) The following stem and leaf display shows the number of units produced in a day:

Stem	Leaf
3	1
4	0
5	4, 7
6	2, 2, 6
7	0, 2, 5, 6, 9, 9
8	5, 7, 9

Based on above , which of the following stamen is/are true?
(i) The range is 58
(ii) The median is 71
(iii) The mean is 66
a) I only
b) II only
c) I and II
d) I and III

8.24) The stem and leaf display constructed from weight(kg) of 15 persons is given below:

Stem	Leaf
4	5, 2, 3
5	4, 7, 4, 8, 9, 5
6	6, 2, 3, 1
7	5, 7

Find Median:

a) 59   b) 58

c) 54   d) 58.25

8.25) Calculate mode of the following data:
15,16,23,23,23,25,25,25,27,27,27,28,28,28,28,28,29,29,29,29

a) 25   b) 27

c) 28   d) 29

8.26) A cricketer score in a cricket series as 51,15,0,3,85,15,51,38. Find mode

a) 15   b) 51

c) 15 $ 51   d) No mode

8.27) 21, 21, 21, 21, 28, 28, 28, 28, 28, 29, 29, 29, 29. Find mode of the data?

a) 28 only   b) 21 & 28 only

c) 21 & 29 only   d) None of these

8.28) 81, 81, 81, 81, 21, 21, 21, 21, 21, 90, 90, 90, 90. Find mode of the data?

a) 21 only   b) 21 & 81 only

c) 21 & 90 only   d) None of these

8.29) The stem and leaf display constructed from weight(kg) of 15 persons is given below:

Stem	Leaf
4	5, 2, 3
5	4, 7, 4, 8, 9, 5
6	6, 2, 3, 1
7	5, 7

Find Mode:

a) 77   b) 62

c) 64   d) 54

8.30) A set of exam scores is represented by the following stem and leaf display:

```
4 | 5  6  8
5 | 3  4  5  6  9
6 | 2  3  5  6  6  9  9
7 | 0  1  1  3  3  4  5  5  5  7  8
8 | 1  2  3  6  9
9 | 3  5  7  8
```

The mode for the data set is:
a) 75
b) 71
c) 78
d) 69

8.31) Following is the data related to number of persons per house in a village town:

No. of persons per house	1	2	3	4	5	6	7	8	9	10
No. of houses	25	114	120	90	50	41	20	12	3	2

The mean, median and modal number of persons per house are:
a) 3.67, 3, 3
b) 3.62, 4, 5
c) 3.67, 3, 5
d) 3.42, 3, 3

8.32) The scores obtained by six students in a set of examination are 80, 40, 50, 72, 45, and 81. These scores are changed by 15%. What will be the effect of these changes on the mean and standard deviation?
a) Mean and standard deviation will remain unchanged
b) Mean will increase by 15% but standard deviation will remain unchanged.
c) Mean and standard deviation both will increase by 15%
d) Mean will remain unchanged but standard deviation will increase by 15%

8.33) If every item of the data is increased by 5% what is the effect on mean and standard deviation?
a) Mean is increased by 5%, SD increased by 5%
b) Mean remain same, SD increased by 5%
c) Mean is increased by 5%, SD remain unchanged
d) Mean is increased by 5%, SD increased by 25%

8.34) Mean of 15 observations is 35. If 5 is deducted from each observation and then it is multiplied by 3. Find the Mean of new observation:
a) 35
b) 110
c) 90
d) 30

8.35) In positive skewed distribution, the Median is _____ than Mean
a) Less
b) More
c) Equal
d) None of these

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8.36) If date one has mean $X = 50$ and date two has mean $Y = 75$ and a constant 3 is added to both of these data then their means will?

a) Increase by 3 times
b) Increase by 3 units

c) Decrease by 3 times
d) Decrease by 3 units

8.37) Find upper quartile from the following data:
11, 19,19,20,21,24,25,25,36

a) 20
b) 25

c) 19
d) 24

8.38) If the median is 49.21 and the two quartiles are 37.15 and 61.27, what can be said of the skewness?

a) Distribution is positively skewed
b) Distribution is negatively skewed

c) Distribution is symmetrical
d) None of the above

8.39) Consider the below box plot and identify which of the following statement is correct?
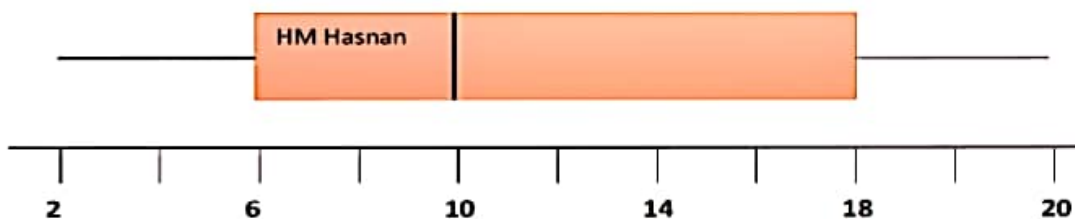
a) The distribution is skewed towards left
b) Inter-quartile range is 12

c) The lower quartile is 10
d) The Upper quartile is 20

8.40) In box and whisker plot. How much area is covered below P_{60}

a) 40
b) 60

c) 59
d) 41

8.41) In box and whisker plot how, much area is covered in whisker (hinge) before the box.

a) 75%
b) 25%

c) 50%
d) 100%

8.42) In boxplot, the box represents _____ of the observations.

a) 25%
b) 50%

c) 75%
d) 90%

8.43) Consider the following observations

95	103	97	130	96	73	78	95	89	68
85	62	69	83	118	112	95	87	93	117

The number of observations lying in the limit mean $\pm 2\sigma$ are:
a) 20
b) 19
c) 18
d) 17

8.44) If frequency distribution is positively skewed then show the relation between mean, median and mode
a) Mean = median = mode
b) Mean < median < mode
c) Mean > median > mode
d) Median > Mean > mode

8.45) For distribution is skewed to left tail as (negatively skewed) is.
a) Mean = median = mode
b) Mean < median < mode
c) Mean > median > mode
d) Median > Mean > mode

8.46) Following data is given find mean and SD of 36,26,19,5,4
a) Mean = 18, SD = 12.28
b) Mean = 16, SD = 11.28
c) Mean = 28, SD = 14
d) Mean = 20, SD = 14.28

8.47) Find variance of the following data 3,9,9,6
a) 6.1875
b) 5.1875
c) 4.1875
d) 3.1875

8.48) Variance can never be
a) 0
b) 1
c) Positive
d) Negative

8.49) 10 readings of temperature are given below:
-20, -18, -17, -15, -2, -12, -8, -5, -4, -12

a) Variance of this data is negative
b) Variance can be positive or negative
c) Variance must be at least 0
d) Variance can't be calculated as all the values are negative

8.50) The quantity which expresses the standard deviation as a percentage of mean is Called:
a) Co-efficient of variation
b) Co-efficient of dispersion
c) Co-efficient of correlation
d) Co-efficient of Quartile

8.51) Which shapes exactly bell shaped

- a) Symmetric Distribution
- b) Normal Distribution
- c) Rightly Skewed
- d) Both a & b

8.52) For a data set, median is 49.27 and Q_1 and Q_3 are 37.21, 61.33 respectively. Determine if they are

- a) Rightly Skewed
- b) Positively skewed
- c) Symmetric Distribution
- d) Negatively skewed

8.53) The Standard deviation of X is 4. Find the Variance of Y if Y = 5X/3+10

- a) 54.44
- b) 44.44
- c) 11.11
- d) 21.11

8.54) Detail of minor claims of an automobile's insurance company is as below:

Claim (Rs.)	1 – 1000	1001 - 2000	2001 – 3000	3001 – 4000	4001 – 5000
No. of claims	5	30	60	70	80

The Standard Deviation and variance for the insurance companies above data is:

- a) 1093 and 1,194,502
- b) 1,194,502 and 1,093
- c) 1093 and 33
- d) 3267 and 57

8.55) Which of the following statements as regards to variance is/are correct?

- (i) It can never be smaller than the standard deviation
- (ii) It can never be zero.
- a) Both statements are correct
- b) Both statements are not correct
- c) Only statement (i) is correct
- d) Only statement (ii) is correct

8.56) Which of the following statements as regards to variance is/are correct?

- (i) It is always smaller than the standard deviation
- (ii) It can never be negative.
- a) Both statements are correct
- b) Both statements are not correct
- c) Only statement (i) is correct
- d) Only statement (ii) is correct

8.57) Who has greater consistency.

Asif Score	10	50	70	80	90	100
Abid Score	40	30	50	45	0	10

- a) Abid
- b) Asif
- c) Equal
- d) None

8.53) The Standard deviation of X is 4. Find the Variance of Y if Y = 5X/3+10

a) 54.44　　　　　　　　　　　　　　b) 44.44

c) 11.11　　　　　　　　　　　　　　d) 21.11

8.54) Detail of minor claims of an automobile's insurance company is as below:

Claim (Rs.)	1 – 1000	1001 - 2000	2001 – 3000	3001 – 4000	4001 – 5000
No. of claims	5	30	60	70	80

The Standard Deviation and variance for the insurance companies above data is:

a) 1093 and 1,194,502　　　　　　　b) 1,194,502 and 1,093

c) 1093 and 33　　　　　　　　　　　d) 3267 and 57

8.55) Which of the following statements as regards to variance is/are correct?

(i)　It can never be smaller than the standard deviation

(ii)　It can never be zero.

a)　Both statements are correct　　　b)　Both statements are not correct

c)　Only statement (i) is correct　　　d)　Only statement (ii) is correct

8.56) Which of the following statements as regards to variance is/are correct?

(i)　It is always smaller than the standard deviation

(ii)　It can never be negative.

a)　Both statements are correct　　　b)　Both statements are not correct

c)　Only statement (i) is correct　　　d)　Only statement (ii) is correct

8.57) Who has greater consistency.

Asif Score	10	50	70	80	90	100
Abid Score	40	30	50	45	0	10

a)　Abid　　　　　　　　　　　　　b)　Asif

c)　Equal　　　　　　　　　　　　　d)　None

RISE PREMIER

[STATS, Important Questions] [CH-08]
By:(HM Hasnan)

8.58) Following is the data

Companies	Employees	Salaries	Standard Deviation
A	200	25 million	25,000
B	150	36 million	8,000

Which company is more stable?

a)　Company A　　　　　　　　　　b)　Company B

c)　Cannot be determined　　　　　d)　Both are same

8.59) Following data is given for two sales department of a multinational company

Department	Sales force	Revenue	SD
A	200	10 million	25000
B	150	36 million	80000

In your opinion which department is more consistent?

a)　Department A　　　　　　　　　b)　Both

c)　Department B　　　　　　　　　d)　None

8.60) Team A scored an average of 205 runs in twenty-one-day international matches with a standard deviation of 10 whereas Team B scored an average of 190 runs in same one-day international matches with a standard deviation of 8. Which of the following is correct?

a)　Team A is more consistent　　　b)　Team B is more consistent

c)　Both teams are equally consistent　　d)　Consistency cannot be determined from the above information

8.61) Following data is given 3,6,9,6, 3 . find C.V (Coefficient of variance).

a)　45.17%　　　　　　　　　　　　b)　43.5%

c)　42.75%　　　　　　　　　　　　d)　41.57%

8.62) If the laboratory technician A completes 40 analyses with a standard deviation of 5 and technician B completes 160 analyses per day with standard deviation of 15, find which employee shows less variability.

a)　Technician A　　　　　　　　　b)　Technician B

c)　Both Technician are equally　　　d)　Consistency cannot be determined from the above information

8.63) Types of dispersion which measures the variation present among the values with same unit or square of units of variable?

a)　Absolute Dispersion　　　　　　b)　Relative Dispersion

c)　Distribution　　　　　　　　　　d)　All of these

8.64) Which of the following is NOT a measure of Dispersion?

a)　The range　　　　　　　　　　　b)　The 50th percentile

c)　The standard deviation　　　　　d)　The semi inter-quartile range

8.51) Which shapes exactly bell shaped

a) Symmetric Distribution   b) Normal Distribution

c) Rightly Skewed   d) Both a & b

8.52) For a data set, median is 49.27 and Q_1 and Q_3 are 37.21, 61.33 respectively. Determine if they are

a) Rightly Skewed   b) Positively skewed

c) Symmetric Distribution   d) Negatively skewed

8.53) The Standard deviation of X is 4. Find the Variance of Y if $Y = 5X/3+10$

a) 54.44   b) 44.44

c) 11.11   d) 21.11

8.54) Detail of minor claims of an automobile's insurance company is as below:

Claim (Rs.)	1 – 1000	1001 - 2000	2001 – 3000	3001 – 4000	4001 – 5000
No. of claims	5	30	60	70	80

The Standard Deviation and variance for the insurance companies above data is:

a) 1093 and 1,194,502   b) 1,194,502 and 1,093

c) 1093 and 33   d) 3267 and 57

8.55) Which of the following statements as regards to variance is/are correct?

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c) Distribution
d) All of these

8.64) Which of the following is NOT a measure of Dispersion?
a) The range
b) The 50th percentile
c) The standard deviation
d) The semi inter-quartile range

8.65) Which of the following statements is/are correct?
- (i)   Range is a measure of dispersion.
- (ii)   Percentile is a measure of dispersion.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

8.66) Which of the following statements is/are correct?
- (i)   Semi-inter Quartile Range is a measure of dispersion.
- (ii)   Percentile is a measure of dispersion.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

8.67) Which of the following statements is/are correct?

- (i)   Percentile is a measure of dispersion.
- (ii) Quartile is a measure of dispersion.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

8.68) Which of the following statements is/are correct?
- (i)   Range is a measure of dispersion.
- (ii)   Inter Quartile Range is a measure of dispersion.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

8.69) Which of the following statements is/are correct?
- (i)   Range is a measure of dispersion.
- (ii)   Semi-inter Quartile Range is a measure of dispersion.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

8.70) Which of the following statements is/are correct?
- (i)   Percentile is a measure of dispersion.
- (ii)   Semi-inter Quartile Range is a measure of dispersion.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

8.71) Which of the following statements is/are correct?
  (i) Percentile is a measure of dispersion.
  (ii) Range is a measure of dispersion.
   a) Both statements are correct
   b) Both statements are not correct
   c) Only statement (i) is correct
   d) Only statement (ii) is correct

8.72) The mean and standard deviation of a data of 100 observations were found to be 104 and 4.7 respectively. Later, error was detected in three records as enumerated below:

Sr. No	Correct Figure (as per Original record)	Amount Taken (for computation)
58	151	115
72	78	87
89	98	89

You are required to find correct mean and standard deviation.
   a) 105.21 and 6.2
   b) 107.5 and 7.2
   c) 104.36 and 6.7
   d) 102.36 and 5.2

https://www.youtube.com/watch?v=xbna7pv9uiY&t=149s

(For Solution, Scan the bar code)
(video name: Rectification in mean and Standard deviation)

Chapter-09
Indices

9.1) The barometer of commerce is:
- a) Standard Deviation
- b) Co efficient Of variation
- c) Index Number
- d) None of the above

9.2) Comparison Year is called_____?
- a) Current year
- b) Base year
- c) Both a & b
- d) None of these

9.3) Sampling Error exist in_____?
- a) Euler Number
- b) Index Number
- c) Mean
- d) Median

9.4) In which Index, choice of base year is difficult?
- a) Quantity Index No.
- b) Weighted Index No.
- c) Price index No.
- d) Simple Qty Index No.

9.5) What is effect of Paasche's Index No. on inflation?
- a) Its Understate inflation
- b) Neutral
- c) Its Overstate inflation
- d) No impact

9.6) What is effect of Laspeyre's Index No. on inflation?
- a) Its Understate inflation
- b) Neutral
- c) its Overstate inflation
- d) No impact

9.7) Laspeyre price index tends to overstate inflation, this is because
- a) Both prices and quantities of current year are used for inflation.
- b) Both prices and quantities of base year are used as numerator for inflation.
- c) Consumers reacts to price increases
- d) All of these

9.8) Laspeyre price index also called the
- a) current year quantity weighted method
- b) base year quantity weighted method
- c) Both
- d) None of these

9.9) Which of the following does not change in the calculation of Laspeyre index every year?
- a) Denominator
- b) Numerator
- c) Both
- d) None of these

9.10) The only new information that has to be collected each year in the calculation of Laspeyre index is
a) Price of items
b) Quantities of items
c) Both
d) None of these

9.11) Laspeyre price index fails to account for the following fact that
a) People will buy less of those items which have risen in prices more than other
b) People will buy more of those items which have risen in prices more than others
c) It is based on quantities bought in current year instead of base year
d) All of these

9.12) Why Laspeyre price index is used more than the Paasche price index?
a) Because quantities of base year has to be collected to construct Paasche index
b) Because more information has to be collected to construct Laspeyre index
c) Because less information has to be collected to construct Paasche index
d) Because more information has to be collected to construct Paasche Index

9.13) If the Fisher index is 10% more than the Laspeyre's Index and base year index is 109.5, find Paasche's index
a) 120.5
b) 115.5
c) 132.5
d) 32.5

9.14) If the current year's weighted index is 5% higher than the base year and Fisher's Ideal Index Number is 250, find out the Laspeyre's Price Index Number and Paasche's Price Index Number.
a) 214 and 246
b) 336 and 346
c) 244 and 256
d) 200 and 214

9.15) Compute the real wages for each of the above years.

Year	Pay (Rs.)	Price index
2005	12350	110.1
2006	13500	122.3
2007	14800	137.6
2008	16500	160.2

a) 11217, 11038, 10766, 10300
b) 11217, 11038, 10756, 10330
c) 11217, 11138, 10756, 10300
d) 11217, 11038, 10756, 10300

9.16) The income of the person in 2018 is Rs.50,000 and cost of living index is 109. What is the real income. _____? [Rs.45,871.56]

9.17) Find Laspeyre's Price index number?

2002 price	2000 price	2000 quantity
123	112	50
244	220	40
301	290	35

a) 109.91   b) 107.71

c) 105.71   d) 108.81

9.18) Compute Laspeyres Price Index for the following data using 2002 as base:

Ingredients	Price in 2002	Price in 2007	Quantity in 2002
A	140	220	40
B	120	180	25
C	80	110	60

a) 147.21   b) 148.51

c) 149.50   d) 146.50

9.19) Find Index Number

2002		2003	
Price	Qty	Price	Qty
10	20	15	22
12	22	17	25

Find quantity index using 2002 as base
i)   Laspeyre method
ii)   Paasche method

a) 110.07, 109.02   b) 106.07, 106.02

c) 112.07, 112.02   d) 108.07, 108.02

9.20) Chemical Master Company (CMC) produces a special industrial chemical that is a blend of four chemical ingredients. The prices at the beginning and the end of year of each material and quantities required to make one unit of finished product are given below:

Ingredients	Jan 20X2 (Base Period)		Dec 20X5 (Current Period)	
	Price per kg	Kg per unit	Price per kg	Kg per unit
A	2.50	10.00	3.95	11.00
B	8.75	3.00	9.90	2.50
C	0.99	2.00	0.95	3.00
D	4.00	2.00	4.50	5.00

Using Laspeyre price index as at Dec 20X5, which of the following statement Is correct?

a) Prices have risen by 30.82% between Jan 20X2 and Dec 20X5
b) Prices have risen by 23.56% between Jan 20X2 and Dec 20X5
c) Prices have risen by 22.67% between Jan 20X2 and Dec 20X5
d) Prices have risen by 29.31% between Jan 20X2 and Dec 20X5

9.21) Chemical Master Company (CMC) produces a special industrial chemical that is a blend of four chemical ingredients. The prices at the beginning and the end of year of each material and quantities required to make one unit of finished product are given below:

Ingredients	Jan 20X2 (Base Period)		Dec 20X5 (Current Period)	
	Price per kg	Kg per unit	Price per kg	Kg per unit
A	3.00	10.00	3.95	11.00
B	9.00	3.00	9.90	2.50
C	1.00	2.00	0.95	3.00
D	2.00	2.00	4.50	5.00

Using Paasches price index as at Dec 20X5, which of the following statement Is correct?

a) Prices have risen by 21.34% between Jan 20X2 and Dec 20X5
b) Prices have risen by 26.78% between Jan 20X2 and Dec 20X5
c) Prices have risen by 27.14% between Jan 20X2 and Dec 20X5
d) Prices have risen by 36.57% between Jan 20X2 and Dec 20X5

9.22) Chemical Master Company (CMC) produces a special industrial chemical that is a blend of four chemical ingredients. The prices at the beginning and the end of year of each material and quantities required to make one unit of finished product are given below:

Ingredients	Jan 20X2 (Base Period)		Dec 20X5 (Current Period)	
	Price per kg	Kg per unit	Price per kg	Kg per unit
A	3.00	10.00	3.95	11.00
B	9.00	3.00	9.90	2.50
C	1.00	2.00	0.95	3.00
D	2.00	2.00	4.50	5.00

Using Paasches quantity as at Dec 20X5, which of the following statement Is correct? (03)

a) Prices have risen by 8.73% between Jan 20X2 and Dec 20X5
b) Prices have risen by 16.79% between Jan 20X2 and Dec 20X5
c) Prices have risen by 27.14% between Jan 20X2 and Dec 20X5
d) Prices have risen by 36.57% between Jan 20X2 and Dec 20X5

9.23) Which of the following statement is correct about Laspeyre price index?
a) It has a focus which is biased to the cheaper items bought by consumers as a result of inflation.
b) The denominator in the Laspeyre price index has to be recalculated every year to take account of the most recent quantities consumed.
c) It is based on quantities bought in the base year.
d) It tends to understate inflation

9.24) Which of the following statement is correct about Laspeyre price index?
a) It has a focus which is biased to the cheaper items bought by consumers as a result of inflation.
b) The denominator in the Laspeyre price index does not change from year to year.
c) It is based on most recent quantities purchased.
d) It tends to understate inflation

9.25) The price of commodity in different years is given below:

Years	2017	2018	2019	2020
Price	850	950	1100	1300

Chain indices in the above case will be:
a) 100, 100, 150, 200
b) 100, 89.47, 86.36, 84.62
c) 100, 111.76, 129.41, 152.94
d) 100, 111.76, 129.41, 152.94

9.26) The price of commodity in different years is given below: Compute the chain indices for the following years.

Years	2010	2011	2012	2013
Price	49	53	58	62

Determine the chain indices in the above case:
a) 100, 115.50, 118.40, 112.80
b) 100, 92.50, 91.40, 93.55
c) 100, 108.16, 118.36, 126.53
d) 100, 105.50, 116.50, 114.50

9.27) Following Consumer Price index (CPI) has been computed taking 2008 as base year:

Year	CPI
2008	104.96
2009	100
2000	116.19
2001	115.11
2002	132.01

The Yearly inflation/(Deflation) for the above data would be

a) (4.98%), 5.83%, 0.93%, 12.80%
b) 4.98%, 16.19%, 8.41%, 14.69%
c) (4.73%), 6.19%, 8.40%, 14.68%
d) (4.73%), 16.19%, (0.93%), 14.68%

9.28) The price of a juicer machine during past five years is as follows:

Year	Price (Rs.)
2007	3700
2008	4500
2009	4800
2000	5000
2001	5300

By taking 2007 as base year, find the simple index numbers relative to price for the given period.

a) 100, 121.62, 129.73, 135.14, 143.24

b) 121.62, 100, 93.75, 90, 84.91

c) 100, 82.22, 77.08, 74, 69.81

d) 125, 100, 93.75, 90, 84.91

9.29) Which of the following statement is/are correct:

(i) In Laspeyre price index, the denominator does not change from year to year.

(ii) In Paasches price index, the denominator has to be recalculated every year to take account of the most recent quantities consumed

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

ANSWER KEY:

9.1)	C	9.2)	B	9.3)	B	9.4)	C
9.5)	A	9.6)	C	9.7)	C	9.8)	B
9.9)	A	9.10)	A	9.11)	A	9.12)	D
9.13)	C	9.14)	C	9.15)	D	9.16)	Rs.45,871.56
9.17)	B	9.18)	B	9.19)	C	9.20)	A
9.21)	D	9.22)	B	9.23)	C	9.24)	B
9.25)	C	9.26)	C	9.27)	D	9.28)	A
9.29)	A	9.30)		9.31)		9.32)	

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Chapter-10
Correlation & Regression:

10.1) Which of the following correct about scatter diagram?
- a) Perfect correlation (if all the points lie on the line of regression)
- b) Perfect –ve correlation (if all the points lie on the line of regression sloping downward
- c) +ve correlation (if scatter diagram shows increasing trend on right side)
- d) All of these

10.2) If all the points in a scatter diagram lie on the least square regression line, then the coefficient of correlation must be:
- a) Either 0 or 1.0 or -1.0
- b) Either 0 or 1.0
- c) Either 1.0 or -1.0
- d) Zero

10.3) Properties of scatter diagram
- a) Graphical representation of relation b/w independent and dependent variables
- b) It is only used for 2 variables
- c) Independent variable is usually x, Dependent variable is usually y
- d) All of these

10.4) Which of the following statements is correct as regards scatter diagrams?
- a) It is least important to establish which variable is independent before plotting the scatter diagram
- b) It leads to correct conclusions even if there are only few data points.
- c) It can show relationship between more than two variables
- d) It may indicate a relationship where there is none

10.5) Increasing trend on scattered diagram shows _____ trend
- a) negative
- b) Positive
- c) random
- d) None of these

10.6) If all points lie on (scatter line) least square Regression line, then error will be
- a) 0
- b) 1
- c) Maximum
- d) Minimum

10.7) Characteristics of regression line?
- a) Predict/estimate dependent variable when independent variable is given
- b) Define relationship between dependent and independent variable
- c) Both a & b
- d) None of these

10.8) The unknown value of dependent variable can be estimated on the basis of given value of independent variable by using:
- a) Scatter Diagram
- b) Least square regression line
- c) Both a and b
- d) None of these

10.9) Which of the following statement is correct:
- a) The value of coefficient of determination is in the range -1 to +1
- b) The value of coefficient of determination shows how much variation in the value of y is explained by variation in the value of x
- c) If the coefficient of correlation is, r = 0, its mean there is a perfect correlation between x and y.
- d) Both a and b

10.10) There is a perfect positive correlation when:
- a) All the data points lie on a scatter diagram in a discrete form
- b) all the data points lie in an exact straight line and a linear relationship exists between the two variables
- c) All the data points lie in an exact straight line but relationship, may or may not be linear
- d) None of the above

10.11) which of the following statement is correct?
- a) If there is a week relationship between two variables, the points on the scatter diagram would be concentrated around a curve.
- b) Linear regression analysis is used to calculate 'a' and 'b' in the linear cost equation.
- c) The standard regression equation is $y = a - bx$
- d) Both a and b

10.12) Range of coefficient of correlation is?
- a) $-\infty$ to +1
- b) -1 to +1
- c) 0 to +1
- d) -1 to $+\infty$

10.13) when all the data points lie in an exact straight line and a linear relationship exists between the two variables then there is a:
- a) Negative correlation
- b) positive correlation
- c) perfect negative correlation
- d) perfect positive correlation

10.14) Find the relationship between two variables
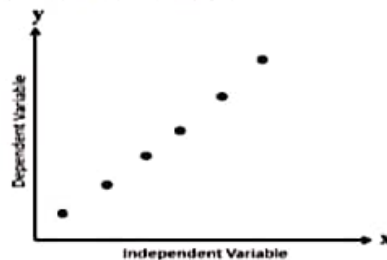
a) perfect positive correlation
b) Moderate positive correlation
c) Weak positive correlation
d) No correlation

10.15) Find the relationship between two variables
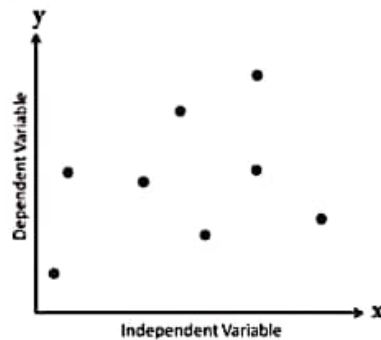
a) perfect positive correlation
b) Moderate positive correlation
c) Weak positive correlation
d) No correlation

10.16) If two variables have perfect positive correlation, then?
a) byx = bxy
b) byx > bxy
c) byx < bxy
d) byx = 1/bxy

10.17) $2y = 3x + 24$; find x intercept?
a) 12
b) -8
c) 8
d) –12

10.18) Which of the following is incorrect about Co efficient of determination?
a) Range from 0 to +1
b) square of "r"
c) Range from 0 to -1
d) explain the variation in dependent variable due to independent

10.19) $n = 10, \sum x = 120, \sum y = 150, \sum x^2 = 1200, \sum xy = 900$. Find regression coefficient y on x
a) 3.01
b) 3.75
c) 2.75
d) 1.75

10.20) If $\sum X = 2000, \sum Y = 1020, \sum X^2 = 10{,}000, \sum Y^2 = 750, \sum XY = 15{,}000$ *and* $n = 100$ The line of regression of Y on X is:
a) 5.6 + 0.17x
b) 6.6 + 0.18x
c) 6.6 + 0.15x
d) 9.6 + 0.18x

10.21) If $\sum X = 173$, $\sum Y = 613$, $\sum XY = 11{,}965$, $\sum X^2 = 4{,}119$ and $n = 10$ then equation for regression line of y on x (line of best fit) would be:

a) Y=40.402+20.898x

b) Y=-61.30+20.898x

c) Y=40.402+1.208x

d) Could not be calculated as value of $\sum Y^2$ is not given

10.22) If the equation for Regression line y on x (line of best fit) is y = 32 + 0.5x, then for every unit increase in x, y would?

a) Increased by 32 units

b) Increased by 16 units

c) Increased by 48 units

d) Increased by 0.5 units

10.23) A regression analysis between sales (in Rs.1000) and advertising (in Rs.1000) resulted in the following least squares regression line Y = 50,000 - 2x, this implies that:

a) As advertising increases by Rs. 1000, sales will increase by Rs. 2000

b) As advertising increases by Rs. 1000, sales will decrease by Rs. 2000

c) As advertising increases by Rs. 1000, sales will decrease by Rs. 48,000

d) As advertising increases by Rs. 1000, sales will increase by Rs. 48,000

10.24) Regression line is y = 32 + 0.5x; one unit increase in x would affect what and how much?

a) 1 unit increase in x causes 0.5unit increase in y

b) 1 unit increase in y causes 0.5 unit increase in x

c) 1 unit increase in x causes 1 unit increase in y

d) 1 unit increase in x causes 1 unit increase in y

10.25) Range of co efficient determination is?

a) $-\infty$ to $+1$

b) 0 to +1

c) -1 to $+\infty$

d) None of these

10.26) If the coefficient of determination is a positive value, then the coefficient of correlation:

a) Must be positive

b) Must be negative

c) Must be zero

d) Can be positive as well as negative

10.27) If $r^2 = 0.56$, byx = 2, find bxy?

a) 0.18

b) 0.38

c) 0.28

d) 0.48

10.28) If $r^2 = 0.25$ then what is its meaning?

a) It means correlation is 25%

b) It means correlation is 75%

c) It means correlation is 50%

d) None of these

10.29) For r^2 = 0.64 the explained variation in dependent variable due to independent variable is:
a) 80% of variations in the value of y are explained by variations in the value of x
b) 64% of variations in the value of y are explained by variations in the value of x
c) 36% of variations in the value of y are explained by variations in the value of x
d) 20% of variations in the value of y are explained by variations in the value of x

10.30) If the value of r^2 = 0.25, it means that
a) 75% of variations in the value of y is explained by variations in the value of x
b) 50% of variations in the value of y is explained by variations in the value of x
c) 25% of variations in the value of y is explained by variations in the value of x
d) 0.25% of variations in the value of y is explained by variations in the value of x

10.31) If the value of coefficient of determination i.e r^2=0.64, it means that:
a) 80% of variations in the value of y is explained by variations in the value of x
b) 64% of variations in the value of y is explained by variations in the value of x
c) 64% of variations in the value of x is explained by variations in the value of y
d) 50% of variations in the value of y is explained by variations in the value of x

10.32) If r = 0.8 (y on x) means that
a) 36% variation in y due to x
b) 36% variation in x due to y
c) 64% variation in x due to y
d) 64% variation in y due to x

10.33) There is 25% deviation(variation) in y due to x. coefficient of correlation is?
a) +0.5
b) -0.5
c) Both a & b
d) None of these

10.34) The value of r^2 for a particular situation is 0.36. What is the coefficient of correlation?
a) +0.6
b) -0.6
c) 0.06
d) ±0.6

10.35) If the Co-efficient of determination is equal to 1, then correlation Co-efficient is
a) Must be equal to one
b) Either – 1 or + 1
c) Any value between – 1 and + 1
d) Must be – 1

10.36) The correlation between height and weight for adults is +0.90. It depicts that height on account of variation in weight is:
a) 90%
b) 45%
c) 10%
d) 81%

10.29) For r^2 = 0.64 the explained variation in dependent variable due to independent variable is:
a) 80% of variations in the value of y are explained by variations in the value of x
b) 64% of variations in the value of y are explained by variations in the value of x
c) 36% of variations in the value of y are explained by variations in the value of x
d) 20% of variations in the value of y are explained by variations in the value of x

10.30) If the value of r^2 = 0.25, it means that
a) 75% of variations in the value of y is explained by variations in the value of x
b) 50% of variations in the value of y is explained by variations in the value of x
c) 25% of variations in the value of y is explained by variations in the value of x
d) 0.25% of variations in the value of y is explained by variations in the value of x

10.31) If the value of coefficient of determination i.e r^2=0.64, it means that:
a) 80% of variations in the value of y is explained by variations in the value of x
b) 64% of variations in the value of y is explained by variations in the value of x
c) 64% of variations in the value of x is explained by variations in the value of y
d) 50% of variations in the value of y is explained by variations in the value of x

10.32) If r = 0.8 (y on x) means that
a) 36% variation in y due to x
b) 36% variation in x due to y
c) 64% variation in x due to y
d) 64% variation in y due to x

10.33) There is 25% deviation(variation) in y due to x. coefficient of correlation is?
a) +0.5
b) -0.5
c) Both a & b
d) None of these

10.34) The value of r^2 for a particular situation is 0.36. What is the coefficient of correlation?
a) +0.6
b) -0.6
c) 0.06
d) ±0.6

10.35) If the Co-efficient of determination is equal to 1, then correlation Co-efficient is
a) Must be equal to one
b) Either – 1 or + 1
c) Any value between – 1 and + 1
d) Must be – 1

10.36) The correlation between height and weight for adults is +0.90. It depicts that height on account of variation in weight is:
a) 90%
b) 45%
c) 10%
d) 81%

10.37) If r = 0.9, line y on x

a) 90% variation in y w.r.t.x   b) 81% variation in y w.r.t.x

c) 19% variation in y w.r.t.x   d) 10% variation in x w.r.t.x

10.38) $\sum x = 1,239$, $\sum y = 79$, $\sum xy = 17,233$, $\sum x^2 = 568,925$, $\sum y^2 = 293$ n = 100 find line 'y on x' and 'x on y' and their point of intersection?

a) Mean of x = 12.93, mean of y = 0.79   b) Mean of x = 14.93, mean of y = 2.79

c) Mean of x = 10.93, mean of y = 1.79   d) Mean of x = 13.93, mean of y = 0.79

10.39) Find the coefficient of correlation between x and y if
Regression line of x on y is: $5x - 4y + 2 = 0$
Regression line of y on x is: $x - 5y + 3 = 0$

a) 0.2   b) 0.3

c) 0.4   d) 0.5

10.40) In regression, the sum of the residuals is always:

a) 0   b) >0

c) <0   d) All of these

10.41) What will be the coefficient of correlation for a sample of 20 pairs of observations, given that.
$\bar{x} = 2$, $\bar{y} = 8$, $\sum x^2 = 180$, $\sum y^2 = 1424$ and $\sum XY = 404$

a) 0.90   b) 0.70

c) 0.80   d) None of the above

10.42) Correlation b/w Car (weight & reliability)   is   r = - 0.30
Correlation b/w Car (weight & maintenance cost) is   r = +0.7

(i) Heavier cars tend to be less reliable
(ii) Heavier cars tend to cost more to maintain
(iii) Car weight is related more strongly to reliability than to maintenance cost

a) I only   b) III only

c) II and III   d) I and II

10.43) Correlation b/w Car weight & reliability is   r = 0.30
Correlation b/w Car weight & maintenance cost is   r = 0.20
Which of the following statements are true?

(i) Heavier cars tend to be less reliable
(ii) Heavier cars tend to cost more to maintain
(iii) Car weight is related more strongly to reliability than to maintenance cost

a) I only   b) III only

c) II and III   d) I, II and III

10.44) If covariance (x,y) = 62, Standard deviation (x) = 16 and standard deviation (y) = 7, 'r' will be equal to:

a) 0.6435   b) 0.5536

c) 0.6235   d) 0.5235

10.45) Regression lines passes through the......

a) ΣX, ΣY b) $\bar{X}, \bar{Y}$

c) $\Sigma(Y - \bar{Y})$ d) None of these

10.46) If regression coefficient of y on x is 1.44 and the coefficient of correlation between x and y is 0.6, the regression coefficient of x on y will be

a) 0.84   b) 2.4

c) 0.25   d) 4

10.47) If r ranges from +0.9 to +1.00 then which of the following is correct

a) there is strong correlation   b) there is high correlation

c) there is perfect correlation   d) All of these

10.48) $\Sigma(X-\bar{X})(Y-\bar{Y}) = 954$ and standard Deviation of x is 21.5 and standard Deviation of y is 10.61, $r = 0.524$ then find n =?

a) 17   b) 8

c) 19   d) 20

10.49) A biologist assumes that there is a linear relationship between amount 965) of fertilizer supplied to tomato plants and the subsequent yield of tomatoes obtained.

Eight tomato plants of the same variety were selected at random and treated weekly with a solution in which x grams of fertilizer was dissolved in a fixed quantity of water. The yield, y kilograms of tomatoes was recorded.

PLANT	A	B	C	D	E	F	G	H
X	1	1.5	2	2.5	3	3.5	4	4.5
Y	3.9	4.4	5.8	6.6	7	7.1	7.3	7.7

Estimate the yield of a plant treated weekly with 3.2 grams of fertilizer

a) 6.7   b) 7.6

c) 3.9   d) 8.2

10.50)   The members of the selection committee rank eight players for selection as follows: Rank Correlation of the following Data?

Player	A	B	C	D	E	F	G	H
Rank (member 1)	1	2	3	4	5	6	7	8
Rank (member 2	2	1	5	7	3	6	4	8

The coefficient of rank correlation is:

a) 0.57   b) 0.67

c) 0.47   d) 0.37

10.51)   The average runs scored by seven leading test cricketers during last calendar year are given below:

Average runs scored in 1st innings (x)	46	73	68	79	49	43	81
Average runs scored in 2nd innings (y)	31	55	65	62	85	36	53

The spearman's rank correlation coefficient for the runs scored in first and second innings is:

a) 0.7143   b) 0.7143

c) 0.2857   d) 0.8810

10.52) $B_{xy} = -0.41$ $B_{yx} = -0.71$, r = ?

a) 0.54   b) -0.54

c) 0.35   d) Not possible

10.53)   Find the coefficient of correlation between x and y if:
Regression line of x on y is: 5x-4y+2=0 and
Regression line of y on x is: x-5y+3=0

a) 0.4   b) -0.4

c) ±0.4   d) ±0.16

10.54)   Consider following data

Towns	Bee	Cee	Dee	Gee	Jay	Kay	Pee	Tee
Police strength	140	130	220	150	140	150	180	160
No. of crimes per Month	95	110	80	75	90	120	100	110

The equation for regression line of y on x (line of best fit) for the above data is: Y=129.25-0.2x

Using the above regression equation, which of the following statement is correct?

a) Police of Bee town is more efficient than police of Cee town
b) Police of Dee town is more efficient than police of Gee town
c) Police of Kay town is more efficient than police of Pee town
d) Both (a) and (b)

Video name: Regression Analysis (Police, Crime Question)

10.55) The citizen police Liasion Committee of Utopia City has gathered following information from various town of the city.

Towns	Bee	Cee	Dee	Gee	Jay	Kay	Pee	Tee
Police strength	140	130	220	150	140	150	160	150
No. of crimes per Month	95	110	90	55	90	120	130	110

The equation for regression line of y on x (line of best fit) for the above data is: Y=112.865 - 0.083x

Using the above regression equation, which of the following statement is correct?

a) Police of Cee town is more efficient than police of Bee town
b) Police of Dee town is more efficient than police of Gee town
c) Police of Kay town is more efficient than police of Pee town
d) Police of Tee town is more efficient than police of jay town

10.56) A medical research company has developed the following equation for regression line of y on x (line of best fit) for a particular age group y= 6.93 +0.38x where x represent height in centimeters and y represents weight in kilogram. Using above equation, we can say that:

a) For each centimeter increase in height, weight will decrease by 0.38 kilogram
b) For each centimeter increase in height, weight will increase by 0.38 kilogram
c) For each centimeter increase in height, weight will increase by 6.55 kilogram
d) For each centimeter increase in height, weight will decrease by 6.55 kilogram

10.57) A regression analysis between sales (in Rs. 1,000) and advertising 972) (in Rs. 1,000) resulted in the following least squares line Y = 80 + 5x, this implies that:

a) As advertising increases by Rs. 1,000, sales increases by Rs. 5,000
b) As advertising increases by Rs. 1,000, sales increases by Rs. 80,000
c) Advertising increases by Rs. 5, sale increases by Rs. 80
a) None of these

10.58) If a = -12.57 and b = 0.35 then equation for regression line of y on x (line of best fit) would be:

a) Y = -0.35 + 12.57x

b) Y = 0.35 - 12.57x

c) Y = 12.57 - 0.35x

d) Y = -12.57 + 0.35x

10.59) If 25% of variations in the value of y are explained by variations in the value of x then coefficient of correlation is:

a) 0.25

b) 0.75

c) 0.50 or -0.50

d) Either 0.25 or – 0.25

10.60) The following data pertains to a group of football players:

Heights (inches)	72	66	71	68	75
Weight (kg)	95	80	83	75	92

Equation of a line of best fit for the above data will be:

a) Y = 1.89 – 48.06x

b) Y = 1.89 + 48.06x

c) Y = -48.06 + 1.89x

d) Y = 48.06 - 1.89x

10.61) One restaurant collected the following data advertising and sales for five months:

Advertising Exp (Rs. '000')	10	40	20	35	50
Sales (Rs. '000')	125	535	180	415	560

Equation of a line of best fit for the above data will be:

a) Y = -17.06 + 12.26x

b) Y = 17.06 - 12.26x

c) Y = -17.06x + 12.26

d) Y = 17.06x - 12.26

10.62) Which of the following statement is correct?

a) If there is a strong relationship between two variables, the point on the scatter diagram would be concentrated around a curve.

b) Linear regression analysis is used to calculate values of 'a' and 'b' in the linear cost equation

c) The standard regression equation is: y = a – bx

d) Both (a) and (b)

10.63) Value of r = 0, indicates:

a) Perfect positive correlation

b) Perfect negative correlation

c) No correlation

d) None of the above

10.64) What will be the coefficient of correlation for a sample of 20 pairs of observations, given that $\bar{x}= 2$, $\bar{y} = 8$, $\sum X^2 = 180$, $\sum Y^2 = 1424$ and $\sum XY = 404$

a) 0.90

b) 0.70

c) 0.80

d) None of the above

10.65) Which of the following statements as regards to the value of the correlation coefficient is/are correct?

(i) It is always greater than 0

(ii) It is always lies in the range -1 to +1

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

10.66) Which of the following statements is/are correct?

(i) There is strong relationship between two variables, the points on the scatter diagram would be concentrated around a curve.

(ii) Linear regression analysis can be used to estimate fixed cost and variable cost per unit from historical total cost and production data.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

10.67) Which of the following statements about scatter diagram is/are correct?

(i) It is least important to establish which variable is independent

(ii) It might indicate a relationship where there is none.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

10.68) Which of the following statements about scatter diagram is/are correct?

(i) It leads to correct conclusion even if there are only few data points.

(ii) It might indicate a relationship where there is none.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

10.69) Which of the following statements about scatter diagram is/are correct?

(i) It might indicate a relationship where there is none.

(ii) Shows visual relation between variables.

a) Both statements are correct

b) Both statements are not correct

c) Only statement (i) is correct

d) Only statement (ii) is correct

10.70) Which of the following statements about scatter diagram is/are correct?
  (i)   It is least important to establish which variable is independent
  (ii)   It leads to correct conclusion even if there are only few data points.
  a)   Both statements are correct
  b)   Both statements are not correct
  c)   Only statement (i) is correct
  d)   Only statement (ii) is correct

10.71) Which of the following statements about scatter diagram is/are correct?
  (i) It leads to more accurate results if the collected data is atypical
  (ii) we can draw it for two or more variables
  a)   Both statements are correct
  b)   Both statements are not correct
  c)   Only statement (i) is correct
  d)   Only statement (ii) is correct

10.72) Which of the following statements about scatter diagram is/are correct?
  (i)   It is important to establish which variable is independent before plotting
  (ii)   It might indicate a relationship where there is none
  a)   Both statements are correct
  b)   Both statements are not correct
  c)   Only statement (i) is correct
  d)   Only statement (ii) is correct

10.73) Which of the following statements about scatter diagram is/are correct?
  (i)   It leads to more accurate results if the collected data is atypical
  (ii)   It might indicate a relationship where there is none
  a)   Both statements are correct
  b)   Both statements are not correct
  c)   Only statement (i) is correct
  d)   Only statement (ii) is correct

10.74) Which of the following statements as regards to the value of the correlation coefficient is/are correct?
  (i) The coefficient of determination is the square of the correlation coefficient
  (ii) The value of the coefficient of determination must always be in the range 0 to +1.
  a)   Both statements are correct
  b)   Both statements are not correct
  c)   Only statement (i) is correct
  d)   Only statement (ii) is correct

10.75) Which of the following statement is/are correct where Regression is used?
  (i) It is very important in accounting and other business operations
  (ii) It is widely used in economics & business
  a)   Both statements are correct
  b)   Both statements are not correct
  c)   Only statement (i) is correct
  d)   Only statement (ii) is correct

10.76) Which of the following statement is/are correct where Regression is used?
(i) It tells fixed cost but not variable cost per unit.
(ii) It shows the extent of relationship between two variables
a) Both statements are correct
b) Both statements are not correct
c) Only statement (i) is correct
d) Only statement (ii) is correct

10.77) Which of the following statement is/are correct about correlation coefficient?
(i) It is always from 0 to +1
(ii) It is always from 0 to -1
a) Both statements are correct
b) Both statements are not correct
c) Only statement (i) is correct
d) Only statement (ii) is correct

10.78) Which of the following statements about scatter diagram is/are correct?
(i) It leads to more accurate results if the collected data is a typical
(ii) It shows the relationship between two variables.
a) Both statements are correct
b) Both statements are not correct
c) Only statement (i) is correct
d) Only statement (ii) is correct

Chapter-11

Probability Concepts:

11.1) Find 0!

    a)   0   b)   100

    c)   1   d)   10

11.2) If a coin is flipped three times, the possible sample will be:

    a)   HHH, HTT, HTH, TTT, HTT, THH, HHT, THT

    b)   HTT, THT, HTH, HHH, TTH, TTT

    c)   HHH, THT, HTH, HTT, THH, THT, TTH, TTT

    d)   HHH, TTT, THT, HTH, HHT, TTH, HTH

11.3) A coin is tossed 3 times, all possible outcomes are

    a)   [HHH, HHT, HTH, HTT, HHH, HHT]   b)   [HHH, HHT, HTH, HTT, THH, THT, TTH, TTT]

    c)   [HHH, HHT, HTH, HTT, THT, THT, TTH, TTT]   d)   [HHH, HHT, HTH, HTT, THT, THT]

11.4) There are 6 digits 1,3,4,5,7,9. A three-digit number is to be made from these numbers which should be divisible by 2. (No repetition of numbers). Find all possible ways…

    a)   10   b)   20

    c)   30   d)   40

11.5) How many 3-digit numbers can be formed from the digits 2, 3, 5, 6, 7 and 9, which are divisible by 5 and none of the digits is repeated?

    a)   120   b)   30

    c)   20   d)   18

11.6) How many 3-digit numbers can be formed from the digits 1, 3, 4, 5, 7 and 9, which are divisible by 2 and none of the digits is repeated?

    a)   6   b)   20

    c)   120   d)   360

11.7) In how many ways the word "CORRECT" be arranged.

    a)   210   b)   1260

    c)   2520   d)   5040

11.8) In how many words LEADING can be arranged?

    a)   2520   b)   1640

    c)   5040   d)   1500

11.9) In how many different ways can the letters of the word 'LEADING' be arranged In such a way that the vowels always come together?...

a)   520   b)   620

c)   720   d)   800

11.10) In how many ways word "BINOMIAL" can be arranged, when vowels come together:

a)   120   b)   40320

c)   2880   d)   1440

11.11) In how many ways word "ANCIENT" can be arranged, when vowels come together:

a)   2520   b)   360

c)   120   d)   5040

11.12) In how many different ways can the letters of the word 'DETAIL' be arranged In such a way that the vowels occupy only the ODD position.

a)   42D   b)   48

c)   36   d)   60

11.13) The events A and B are two mutually exclusive events and P(A) = 0.4 and P(B) 0.3, then Find P (A or B).

a)   0.58   b)   0.7

c)   0.6   d)   .42

11.14) If two dice are rolled, what is the probability that either the sum of the two will be seven or at least one of the dice will show the number 5.

a)   3/36   b)   30/36

c)   15/36   d)   4/5

11.15) If a customer wants to choose one of these packages, then find the number of ways available to him

Call metering	1 sec	20 sec	30 sec	60 sec
Fixed monthly charges	0 with no free min	Rs. 300 with 300 free	Rs. 1000 with 1500 free min	
GPRS charges	0 with no GPRS	Rs. 300 with 300 MB	Rs. 500 with 500 MB	

a)   10   b)   12

c)   36   d)   144

11.16) Following data is given

Goal	0	1	2	3	4	5	More than 5
P(X=x)	0.05	0.2	0.15	0.15	0.3	0.05	0.1

Find the probability that there would be total 5 goals in two matches

a) 0.835   b) 0.825

c) 0.175   d) 0.165

11.17) A box contains 57 calculators out of which 36 are defective, if 4 calculators are selected from the box then find the probability that all are defective

a) 0.8509   b) 0.01515

c) 0.1491   d) None of these

11.18) A bookcase contains 6 math books and 12 accounting books. If a student randomly selects two books, then find the probability that both of them are math books or accounting books

a) 0.0423   b) 0.5556

c) 0.5000   d) 0.5294

11.19) While checking out from a departmental store a consumer pass through one out of 12 cash counters C_1 to C_{12} (All having same probability) then his bill is verified by one of 3 officers (with same probabilities) V_1, V_2 or V_3, then he embarks one of two elevators E_1 or E_2 and is twice likely to embark on E_2 as E_1.

Find the probability a consumer will pass through C_6 or C_{12} verified by V_1 and embark on E_2, as it is twice as large as E_1.

a) 17/12   b) 1/27

c) 1/36   d) 1/54

11.20) While checking out from a departmental store a consumer pass through one out of 12 cash counters C_1 to C_{12} (All having same probability) then his bill is verified by one of 3 officers (with same probabilities) V_1, V_2 or V_3, then he embarks one of two elevators E_1 or E_2 and is twice likely to embark on E_2 as E_1.

What is the probability that a consumer will pass through C1, verified by either V1 or V3 and embark on E2.

a) 17/12

b) 1/27

c) 1/36

d) 1/54

11.21) The table below describes the smoking habits of a group of asthma sufferers:

Gender	Non smokers	Light smokers	Heavy Smokers	Total
Men	353	42	49	444
Women	352	32	40	424
Total	705	74	89	868

If a person is randomly selected from the group, the probability that selected person is either Women or Light Smoker Male, is:

a) 0.5737

b) 0.5369

c) 0.5115

d) 0.0373

11.22) There are 65 currency notes of Rs 1000 and 35 currency notes of Rs 500 in a Safe. If 4 notes are selected randomly find the probability that total amount obtained is at least Rs 4000

a) 0.1727

b) 0.5246

c) 0.1527

d) 0.1313

11.23) An (NAC) institute select 30 doctors and give them a medicine to test and give feedback, each doctor selects 50 patients and apply that medicine to them. You are required to determine the sample size for NAC?

a) 80

b) 150

c) 1500

d) 20

11.24) 50% people use cellular mobile and 40% people use landline and 20% people use both. Find the probability that a person selected at random use neither.

a) 20%

b) 30%

c) 40%

d) 50%

11.25) In a bag there are 2 green balls, 3 blue and 2 red balls. if you picked two balls randomly. Find the probability that none is blue?

a) 0.2857

b) 0.3578

c) 0.1245

d) 0.5225

11.26) A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?

a)   0.4762   b)   0.1429

c)   0.1905   d)   0.4000

11.27) A bag contains 2 red, 3 green and 3 blue balls. Three balls are drawn at random. Find the number of ways that atleast 2 of the balls drawn are blue?

a)   13   b)   16

c)   15   d)   None

11.28) Two dices are rolled what is the probability that at least one 6 appears

a)   16.67%   b)   33.33%

c)   31%   d)   30.55%

11.29) Among 18 members of a cricket club, there are 2 wicket keepers and 5 bowlers. In how many ways can a team of 11 members be chosen so as to include only one wicket keeper and at least three bowlers?...

a)   12100   b)   12144

c)   12200   d)   14400

11.30) Two dices are rolled find the probability that atleast 1 "six" appear

a)   1/6   b)   2/6

c)   15/36   d)   11/36

11.31) There are 12 CNG kits out of which 4 are defective, if 4 kits are selected at random then find the probability that at least 3 are defective

a)   1/3   b)   1/15

c)   ½   d)   4/3

11.32) A consignment of 12 refurbished CNG KITs contains 4 defective KITs. If 5 KITs are selected at random then find the probability that at least 3 of them will be defective?

a)   0.0101   b)   0.1414

c)   0.1515   d)   0.2929

11.33) In a bakery there are 3 cakes of pineapple, 4 cakes of chocolate and 2 cakes of vanilla and 1 is without cream. 2 cakes are purchased by a customer. Find the probability that both are chocolate cakes.

a)   2/15   b)   3/15

c)   4/5   d)   2/7

11.34) Out of 12 eggs in a refrigerator, 2 are rotten. From these 12 eggs 4 are selected at random to make a cake. what are the probabilities that: at least one is rotten

a)   240/495   b)   285/495

c)   220/495   d)   200/495

11.35) There is total 57 eggs in a basket out of which 36 are defective. If 4 eggs are selected from the box find the probability that only 1 is defective

a)   1/11   b)   2/15

c)   4/33   d)   None of these

11.36) From Manufacturing of 25 Bulbs .3 are defective if the random sample 5 Bulbs is selected from it. What is the probability that selected sample contain exactly 2 Defective Bulbs

a)   0.087   b)   0.258

c)   0.022   d)   0.098

11.37) A 5-digit Pin Code begin with any number except 0 and 1. If repetition of the same digit is allowed, the probability of a Pin Code beginning with a 7 and ending with an 8 is:

a)   1/10   b)   1/100

c)   1/90   d)   1/80

(Video name: #Probability Exam Important Questions
(#Statistics) Channel:(HM Hasnan)
(Scan this Bar Code for Complete Solution)

11.38) In a certain town, 50% of the households own a cellular phone, 40% own a pager and 20% own both a phone and pager. The proportion of households that own neither a cellular phone nor a pager is:

a)   90%   b)   70%

c)   10%   d)   30%

11.39) In a certain town, 70% of the households own a UPS, 30% own a generator and 20% own both a UPS and generator. The population of households that own neither a UPS nor a generator is:

a)   10%   b)   20%

c)   30%   d)   50%

11.40) A box contains 2 white balls, 3 black balls and 4 red balls. In how many ways three balls be drawn from the box, if at least one black ball is to be included in the draw

a)   32

b)   48

c)   64

d)   72

11.41) 7 people are selected at random from a group of 10 men and 11 women to form a committee. The probability that atleast 5 men would be selected will be:

a)   0.8005

b)   0.1192

c)   0.1401

d)   None of the above

11.42) Ali wishes to plant flowers in front of his house. His father has brought him a box containing3 tulips, 4 roses and 3 jasmines. If he selects five flowers at random, the probability that 1 tulips, 2 roses and 2 jasmine are selected is:

a)   1/9

b)   2/27

c)   3/14

d)   3/28

11.43) In a consignment of 25 auto batteries, 3 are defective. If a random sample of 5 batteries is selected, the probability of having exactly 2 defective batteries is?

a)   0.053

b)   0.035

c)   0.12

d)   0.087

11.44) Online booking system of food channel receives an average of two orders in every four minutes. Assuming an approximate Poisson distribution that five or more orders will be received during a period of eight minutes?

a)   0.3712

b)   0.4679

c)   0.5321

d)   0.4679

11.45) There are 5 red and 7 black cars for sale at fast wheels. If 2 cars are sold, what is the probability that both are red?

a)   0.6364

b)   0.1515

c)   0.3636

d)   0.4167

11.46) The events A and B are mutually exclusive. If $P(A) = 0.5$ and $P(B) = 0.4$, then P(A or B) is:

a)   0.1

b)   0.54

c)   0.9

d)   0.2

11.47) A 4-digit pin code can begin with any number except 0,1 & 2. If repetition of the same digit is allowed, the probability of a pin code begin with 5 and end with a 3 is?

a) 1/70 b) 1/90

c) 1/80 d) 1/49

11.48) There are 5 red and 7 black cars for sale at fast wheels. If 2 cars are sold, what is the probability that first is red & second is black?

a) 0.6364 b) 0.1515

c) 0.2651 d) 0.7349

11.49) A committee is to be made of 4 members from a total of 13 people of which 5 from Punjab, 2 from Balochistan, 4 from Sindh and 2 from KPK, what is the probability that committee contain none from Punjab?

a) 0.402 b) 0.598

c) 0.804 d) 0.196

11.50) One empire from Sindh, two from Baluchistan, two from Punjab and four from KPK, what is the probability that one is from each province?

a) 6.7% b) 8.7%

c) 9.7% d) 12.7%

11.51) A committee is to be made of 5 members from a total of 12 people of which 5 from Punjab, 2 from Balochistan, 3 from Sindh and 2 from KPK, what is the probability that committee contain 2 from Sindh and 1 from each other?

a) 6.8% b) 0.76%

c) 9.8% d) 7.6%

11.52) A wallet contains 65 notes of Rs.1000 and 35 notes of Rs.500. Four notes are selected at random. Find the probability that sum of notes are Rs.3000?

a) 0.3156 b) 0.6844

c) 0.3105 d) 0.6895

By:(HM Hasnan)

Chapter-12

Probability Distributions:

12.1) Which of the following statements as regards the Normal Distribution is NOT correct?
- a) **Both tails of the distribution approach and meet the horizontal axis at a finite but high value.**
- b) Higher standard deviation leads to a flatter curve
- c) The area under the curve represents probability and so totals to 1
- d) It is described by its mean and standard deviation

12.2) Which of the following is not true of the normal distribution?
- a) the measures of central tendency (mean, mode, and median) are equal in value
- b) the curve approaches the x-axis gradually on either side of the mean
- c) the curve is bell-shaped
- d) **the curve is asymmetrical**

12.3) Continuity correction is used in which of the following?
- a) Hyper geometric distribution
- b) **Normal distribution**
- c) Poisson
- d) Binomial

12.4) Which of the following is not expected to be normally distributed
- a) Height of men with age 20 years
- b) Age of students in a class
- c) **Age of entire population in country**
- d) Both b and c

12.5) Binomial distribution does not carry the characteristics
- a) **trails are dependent**
- b) fixed number of trails
- c) Probability will remain same in all trails
- d) probability can be distributed in success or failure

12.6) In which distribution the probability of success remains constant from trial to trial
- a) Hyper geometric distribution
- b) **Binomial distribution**
- c) Poission distribution
- d) All of these

12.7) Which of the following statement is correct?
- a) **If a distribution is skewed it means it is asymmetrical about the mean**
- b) If the peak the middle of the histogram and the frequencies either side are similar to each other the distribution is said to be asymmetrical
- c) The area under the normal curve represents mean
- d) All normal curves are asymmetrical about the mean and are bell shaped

BY: HM Hasnan [CFM (UK), CFMA, MA (Eco)]

12.8) In a binomial distribution
    a)   Mean =Variance
    b)   Mean < Variance
    c)   **Mean > Variance**
    d)   None

12.9) Which of the following statements as regards to Normal distribution is/are correct?
    (i)   Both tails of the distribution approach and meet the horizontal axis at a finite but high value
    (ii)   Higher standard deviation leads to a flatter curve
    a)   Both statements are correct
    b)   Both statements are not correct
    c)   Only statement (i) is correct
    d)   **Only statement (ii) is correct**

12.10) Which of the following statements as regards to Normal distribution is/are correct?
    (i)   Both tails of the distribution approach and meet the horizontal axis at a finite but high value
    (ii)   Lower standard deviation leads to a flatter curve
    a)   Both statements are correct
    b)   **Both statements are not correct**
    c)   Only statement (i) is correct
    d)   Only statement (ii) is correct

12.11) Which of the following is the property of bell-shaped distribution?
    a)   mean = median = mode
    b)   Unimodal
    c)   Symmetrical/ Asymptotic
    d)   **All of these**

12.12) In a consignment of 25 auto-batteries, 3 are defective. If a random sample of 5 batteries is selected, then probability of having exactly 2 defective batteries in the sample is:
    a)   5.3%
    b)   3.5%
    c)   12%
    d)   **8.7%**

12.13) A wallet contains sixty-five Rs. 1000 and thirty-five Rs. 500 currency notes. If four notes are drawn from the wallet at random with replacement, find the probability that total amount drawn would exactly be equal to Rs. 3000 is:
    a)   **31.05%**
    b)   35.00%
    c)   50.00%
    d)   65.00%

12.14) Three dices rolled together. The probability of rolling a 3 on atleast one of three dices is:
    a)   0.3333
    b)   0.3472
    c)   **0.4212**
    d)   0.5787

12.15) When coin is rolled three times find the probability that exactly one head will appear
    a)   **0.375**
    b)   0.625
    c)   0.357
    d)   0.875

12.16) If a dice is rolled 5 times then probability of appearing 3 at least one time is?

a) **0.598**
b) 0.402
c) 0.612
d) 0.388

12.17) A dice is rolled 5 times. What is the probability that exactly 2 "fours" appear?

a) 0.1525
b) **0.1608**
c) 0.1408
d) 0.1728

12.18) You are given 7 true false questions and required to find the probability of at least 1 will be correct?

a) **0.992**
b) 0.008
c) 0.9375
d) 0.0625

12.19) You are given 10 true false questions and required to find the probability of atleast 4 correct.

a) 0.7825
b) **0.8281**
c) 0.9987
d) 0.6898

12.20) An unprepared students go for test. There are 10 true false questions in test. Find the probability that atleast 1 is correct.

a) **0.9990**
b) 0.99
c) 0.9
d) 1.0

12.21) An unprepared students go for test. There are 10 questions MCQs having 4 options in test. Find the probability that atleast 1 is correct.

a) **0.9437**
b) 0.3257
c) 0.6925
d) 0.5250

12.22) In a test there are 20 questions. All questions are MCQs with 4 choices. A person does not know any of the question correctly and is selecting options haphazardly. Find the probability that exactly 4 are correct

a) 19.86%
b) 15.85%
c) **18.96%**
d) 12.12%

12.23) In one day a department manufactures four products, each of which has an independent chance of 20% being faulty. The probability that at least three products are not faulty is:

a) 0.7128
b) **0.8192**
c) 0.5120
d) 0.6154

12.24) Fantastic Five Football Club (FFC) team loses 7% of its matches in every session. The probability that FFC will lose exactly one of its next five matches is?

a) 7%

b) **26.18%**

c) 0.01%

d) 73.82%

12.25) A local news channel has conducted an opinion poll for constructing more dams in the country. The poll result indicates that 80% of the participating viewers support the idea, 10% are against the idea and 10% are undecided. If a sample of 10 participating viewers is selected at random, the probability that atleast 8 viewers will support the idea will be:

a) 0.2684

b) 0.3020

c) 0.3222

d) **0.6778**

12.26) On any given day, the probability that the entire family of Mr.Y eats dinner together is 2/5. Find the probability that, during any 7-day period, family front has each dinner together at least six times

a) 0.1255

b) **0.0188**

c) 0.2185

d) 0.2224

12.27) A Television Company Launch a new Channel after the ranking of their channel there is found that the 80% of Viewer in Favor of this Channel and 10% of viewer against their Channel and 10% are undecided. What is the probability that at least eight of the viewer are in the favor of this Channel if random sample of 10 people are selected from these?

a) 0.6178

b) 0.5778

c) **0.6778**

d) 0.4678

12.28) In a bakery, 3 cakes of fresh cream pineapple, 4 cakes of chocolate, 2 cakes of buttercream strawberry and 1 cake without cream are available. If two customers purchase one cake each, such that first cake is replaced before the sale of the second then, the probability that both the cakes sold would be of chocolate flavour is:

a) 7/12

b) 2/15

c) 0.12

d) **0.16**

12.29) The helpline of an ISP receives an average of four calls in every five minutes during peak load hour. Assuming an appropriate Poisson distribution, what is the probability that three or more calls will be received during a period of ten minutes?

a) 0.8488

b) 0.9576

c) **0.9862**

d) 0.0424

12.30) During peak hours a center receives 4 calls per 30 minutes. What is the probability of getting 3 or more calls in an hour.

a) **0.9862**

b) 0.2968

c) 0.8296

d) 0.9826

12.31) Ahmad received 4 calls in five minutes on average. What is the probability that more than 3 calls will be received in 10 minutes?

a) 0.2365

b) 0.2587

c) 0.1525

d) **0.95**

12.32) FX food channel receives an average of six orders in every four minutes. Assuming an approximate Poisson distribution that five or more orders will be received during a period of four minutes?

a) 0.2849

b) **0.7151**

c) 0.4455

d) 0.5545

12.33) A telephone operator receives on average 2 calls in 3 minutes. Find the probability of receiving more than or equal to 4 calls in 9 minutes

a) 0.2365

b) **0.8488**

c) 0.1525

d) 0.0268

12.34) Online booking system of food channel receives an average of two orders in every four minutes. Assuming an approximate Poisson distribution that five or more orders will be received during a period of nine minutes?

a) 0.3712

b) **0.4679**

c) 0.5321

d) 0.3679

12.35) A normal distribution has mean 5.03 and standard deviation 0.03 then find the probability of values between 5 to 5.06

a) 0.5858

b) **0.6826**

c) 0.6256

d) 0.6101

12.36) In a normal distribution mean = 5.05 and SD = 0.02 find the area between 5.00 and 5.06

a) 0.4214

b) 0.5258

c) 0.6100

d) **0.6853**

12.37) The area under the normal curve between $\mu - 3.5\sigma$ and $\mu + 1.0\sigma$ is

a) 0.3215

b) 0.2518

c) 0.7528

d) **0.8411**

12.38) In a Rice mill the bags of rice has mean weight of 5.05 kg and standard deviation of 0.02 kg. if a bag is selected at random then find the probability that its weight is below 5 kg....

a) **0.62%**

b) 0.72%

c) 0.82%

d) 0.52%

12.39) The weights of bags of rice packed on a machine are normally distributed with mean = 5.15 kg and standard deviation 0.05kg. If a bag is picked at random, find the probability that it weighs less than 5 kg is?

a) 0.9987

b) 0.5013

c) 0.4987

d) **0.0013**

12.40) The weights of bags of rice have mean weight of 5.05 kg and standard deviation of 0.025 kg. If a bag is picked at random then find the probability that its weights between 5 kg and 5.06 kg will be:

a) 50.82%

b) 47.72%

c) **63.26%**

d) 1.64%

12.41) The average life of a certain type of motor is 10 years, with a standard deviation of 2 years. If the manufacturer is willing to replace only 3% of the motors that fail, how long a guarantee should he offer? Assume that the lives of the motors follow a normal distribution.

a) 5.24 years

b) **6.24 years**

c) 7.62 years

d) 7.12 years

12.42) The admissions office at a college reported that this year's freshman class had an average SAT score of 1103 with a standard deviation of 95. What is the probability that a sample of 40 students from this year's freshman class had an average score greater than 1120?

a) **0.1292**

b) 0.3708

c) 0.6292

d) 0.8707

Chapter-13

Sampling & Estimation:

13.1) What is the definition of sampling?
a) A process or method of drawing a representative group of individuals or cases from a particular population
b) a process of arranging population
c) a process of finding probabilities
d) All of these

13.2) Which of the following statements is NOT correct as regards the sampling distribution of the means?
a) The sampling distribution of the means is a normal distribution.
b) The mean of the sampling distribution of the mean is the same as the mean of the population
c) The standard deviation of the sampling distribution is called standard error
d) The standard deviation of the sampling distribution of the mean is the same as the standard deviation of population.

13.3) A survey is made in Karachi on 100,000 people regarding the daily consumption level of water. Find the correct statement.
a) 100,000 people is sample and Karachi city is population
b) 100,000 people is Population and Karachi city is sample
c) 100,000 people is sample and No population
d) None

13.4) 100,000 adults were randomly selected from all over Karachi and asked whether they drink atleast 10 glasses of water each day. Only 45% percent said yes. The population and sample in data is:
a) Population: 45% adults who drink atleast 10 glasses of water. Sample: 100,000 selected adults
b) Population: all adults in Karachi Sample: 45% adults who drink atleast 10 glasses of water
c) Population: all adults in Karachi Sample: 100,000 selected adults
d) None of these

13.5) A company has 1000 customers. The customer service office of the company selected a customer at random from the first 10 customers on the list of customers. Thereafter he selected every 10th customer from the list and called them to get feedback on the services offered by the company. The is an example of:
a) Random sampling
b) Systematic sampling
c) Stratified sampling
d) Quota sampling

13.6) When population is heterogeneous, best suitable method for sampling is:
  a) Cluster Sampling
  b) Quota Sampling
  c) Stratified Sampling
  d) Systematic Sampling

13.7) A business researcher wanted to evaluate the eating habits of England residents from a rural site, such mothers which have less than 3 babies. The sampling used for this purpose is called.
  a) Stratified sampling
  b) Cluster sampling
  c) Systematic sampling
  d) Multistate sampling

13.8) A pharmaceutical company sent its teams into rural areas of the country to interview all mothers with children under 2 years of age. The selected sample is an example of:
  a) Cluster sampling
  b) Systematic sampling
  c) Stratified sampling
  d) Quota sampling

13.9) A Pharmaceutical Company survey in rural area and brief their teams to collect the sample by interview form individual as mother under 2 Child is type of sampling?
  a) Stratified sampling
  b) Cluster sampling
  c) Systematic sampling
  d) Multistate sampling

13.10) Which sampling provides separate estimates for population mean for different groups and also an overall estimate?
  a) Simple random sampling
  b) Quota Sampling
  c) Stratified random Sampling
  d) Systematic Sampling

13.11) Drawing a conclusion about a population from a sample is known as:
  a) Hypothesis testing
  b) Point estimate
  c) Statistical Inference
  d) Systematic sampling

13.12) There are Total 10,000 car buyers in a city
  Suzuki buyers = 2500, Corolla buyers = 2500
  Liana = 2500, Honda = 2500
  400 car buyers are selected, 100 from each category.
  This is an example of
  a) Simple random sampling
  b) Systematic Sampling
  c) Stratified random Sampling
  d) Cluster sampling

13.13) A company has 250 employees and issue 200 forms to its employees to give feedback on its products but only 180 employees gave feedback. What is sample size
  a) 250
  b) 200
  c) 180
  d) None

13.14) As population size increases, the value of the finite population standard deviation of the sample mean

a) Decreases

b) Gets closer to the infinite population standard deviation of the sample mean

c) Both a and b

d) Increases

13.15) How many samples of size 3 can be drawn without replacement from a population of size 5?

a) 12

b) 10

c) 15

d) 25

13.16) If the sample size decreases from 75 to 40 the standard error would be?

a) increase by 36.93%

b) increase by 46.17%

c) Increase by 32.81%

d) increase by 29.73%

13.17) From a given finite population samples are drawn with replacement. If the sample size is decreased from 70 to 50, the standard error would:

a) Increase by 18.32%

b) Increase by 15.48%

c) Increase by 14.14%

d) Increase by 8.37%

https://www.youtube.com/watch?v=a9dFVTk4Zdc
(Video name: Standard Error) Channel:(HM Hasnan)
(Scan this Bar Code for Complete Solution)

13.18) From a given finite population Sample are drawn with replacement. if sample size increase from 40 to 75, standard error would be.

a) 24.97%

b) 26.97%

c) 25.97%

d) 30.97%

https://www.youtube.com/watch?v=a9dFVTk4Zdc
(Video name: Standard Error) Channel:(HM Hasnan)
(Scan this Bar Code for Complete Solution)

13.19) If a finite population of size 324 has a mean 18, what would be the mean of the sampling distribution of the mean for samples of size 25?

a) 5

b) $3\sqrt{2}$

c) 18

d) It cannot be determined from the information given

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13.20) If n = 300, male = 109.Find 95% confidence interval of male students in college?

a) 30.9% to 41.73%

b) 35.9% to 41.73%

c) 25.9% to 41.73%

d) 20.9% to41.73%

13.21) Random Sample 49 items, Variance 90. Find standard error?

a) 12.85

b) 3.59

c) 1.355

d) 0.19

13.22) Sampling is used to test hypothesis about

a) Sample mean

b) Population mean

c) Sample standard deviation

d) None

13.23) Cluster sampling is an example of

a) Random sampling

b) Non-Random Sampling

c) Probability Sampling

d) Non probability sampling

13.24) A study of voting chose 663 registered voters at random shortly after an election. Of these, 72% said they had voted in the election. Election records show that only 56% of registered voters voted in the election. Which of the following statements is true about the boldface numbers?

a) 72% is a parameter and 56% is a statistic.

b) 72% is a sample and 56% is a population

c) 56% is a parameter and 72% is a statistic.

d) 72% and 56% both are parameter

13.25) With a sample size of 900, the standard error is 3. What should be the sample size so that we could be 95% confident that the population mean is within 4 of the sample mean?

a) 2000

b) 2050

c) 1945

d) 1900

13.26) Samples of size 81 are taken from a population of size 500 with mean 10 and standard deviation 3. Find the standard deviation of the sample means

a) 0.31

b) 0.33

c) 0.92

d) 3

13.27) The president of National Cardiac Association (NCA) wants to determine the average number minutes that patients of each doctor walks per day. He randomly selected 30 doctors and advised each of them to poll 50 of their patients at random and submit the main number of walk minutes per day to the NCA. The sample size for NCA will be:

a) 30

b) 50

c) 1500

d) 80

13.28) The process of making an interval based on sample observations containing unknown value of the population parameter with a known probability is called

a) Point Estimation

b) Interval Estimation

c) Stratified Sampling

d) Random Sampling

13.29) Which of the following as regards random sample is INCORRECT?

a) It can be cumbersome when sample is to be obtained from an unusually large population

b) It is not suitable for investigators who are interested in issues related to subgroups of a population

c) It is a bias free sample

d) It is a sample in which every member of population has unequal chance of being selected

13.30) A museum wants to determine the fee that should be charged from the visitors to enable it to earn revenue of Rs 40 million per annum. The administrator of the museum has estimated that 500 visitors visit the museum daily. Identify the size of the sample that would be needed at 95% confidence level such that error in the above claim does not exceed 25, assuming that population standard deviation is 60.

a) 28

b) 35

c) 23

d) 25

13.31) Random sample of 70 items were drawn with replacement from a finite population. If $\sum(x - \bar{x})^2 = 500$, the standard error of the mean would be:

a) 0.319

b) 0.322

c) 2.67

d) 2.69

https://www.youtube.com/watch?v=a9dFVTk4Zdc
(Video name: Standard Error) Channel:(HM Hasnan)
(Scan this Bar Code for Complete Solution)

13.32) The Human Resource Directors of a large company wants to know what the employees of his company think about the proposed changes in remuneration package. A questionnaire is given to 250 employees. 220 employees returned the questionnaire of which 180 employees supports the proposed change in remuneration package. The population is:

a) 250 employees receiving the questionnaire

b) All employees of the company

c) 220 questionnaire which have been returned

d) 180 employees who support the proposed change in remuneration package

13.33) An auto analyst is conducting a satisfaction survey, sampling from a list of 10,000 new car buyers. The list includes 2500 Suzuki buyers, 2500 Hyundai buyers, 2500 Honda buyers, and 2500 Toyota buyers. The analyst selects a sample of 400 car buyers by randomly sampling 100 buyers of each brand. Is this an example of a simple random sample?

a) Yes, because each buyer in the sample was randomly selected

b) Yes, because each buyer in the sample had an equal chance of being selected.

c) Yes, because buyers of every brand were equally represented in the sample

d) No, because every possible sample of 400 buyers did not have an equal chance of being chosen.

13.34) Feroz textiles (FT) is planning to export ready-made garments for adults to England. Which of the following would be an appropriate sample for measuring waste sizes?

a) Sample of all sizes of leading ready-made garment brands in England.

b) Adults selected at random from residents in major cities of England

c) Adults selected at random from a large corporation of England

d) Both (a) and (b)

13.35) The Gallup Poll has decided to increase the size of its random sample of voters from about 1500 people to about 4000 people right before an election. The Poll is designed to estimate the proportion of voters who favor a new law banning smoking in public buildings. The effect of this increase is to

a) Reduce the variability of the estimate

b) Have no effect since the population size is the same.

c) Increase the variability of the estimate.

d) Reduce the bias of the estimate.

13.36) While assessing the accuracy of packed weight of 1 kg sugar bags, a quality controller estimated that the standard deviation is 0.05 gram. How large a sample must he take in order to be 95% confident that the error in his estimate of mean weight will not exceed 0.01 gram?

a) 68

b) 69

c) 96

d) 97

13.37) From an industrial area 70 companies were selected at random and 45 of them were planning for expansion next year. Find 95% confidence limits for the proportion of companies planning for expansion:

a) 0.35, 0.57

b) 0.35, 0.75

c) 0.53, 0.75

d) 0.35, 0.77

13.38) The maximum speed limit on a busy road is 60 km/h. Congestion results in much slower actual speeds. A random sample of 57 vehicles gave an average speed of 23.2 km/h with a standard deviation of 0.3 km/h. What are the upper and lower limits of the confidence interval for the mean speed, given a confidence level of 95%?

a) 23.12-----23.28

b) 22.12----21.28

c) 20.12-----23.28

d) 23.12----20.28

13.39) A sample of 50 DVD has a population mean is 720. The sample mean is 700, find the s.d if level of significance is 1%.

a) +54.92

b) -54.92

c) Both

d) None of these

13.40) In a sample of 700 people in a city 313 are found men. You are required to construct a 95% confidence interval of all the men in a city is between.

a) 0.4821 – 0.5221

b) 0.4076 – 0.4866

c) 0.3840 – 0.4542

d) 0.4040 – 0.4942

13.41) If sample of 50 athletes from the Olympic squad of a country had a mean weight of 85 kg with a standard deviation of 2.5 kg, we can say with 95% confidence that the mean weight of all athletes in the squad is between:

a) 84.23 to 85.77

b) 84.42 to 85.58

c) 84.31 to 85.69

d) 84.09 to 85.91

13.42) Consider the following sample:
4.5, 4.9, 5.2, 5.6, 6.2
With 99% confidence level, the population mean is between?

a) 3.94 to 6.62

b) 5.92 to 6.08

c) 4.99 to 5.91

d) 5.22 to 6.08

13.43) Random sample of 50 items were drawn with replacement from a finite population. If variance is 45, the standard error of the mean would be:

a) 0.900

b) 0.918

c) 0.949

d) 0.968

13.44) From a given finite population, samples are drawn with replacement. If the sample size is increased from 70 to 45. The standard error would:

a) Increase by 25%

b) Increase by 21.62%

c) Increase by 24.72%

d) Increase by 75.28%

13.45) From a given finite population, samples are drawn with replacement. If the sample size is increased from 10 to 100. The standard error would:

a) Decrease by 90%

b) Decrease by 21.62%

c) Decrease by 68.38%

d) Decrease by 31.62%

13.46) From a given finite population, samples are drawn with replacement. If the sample size is increased from 45 to 75. The standard error would:

a) Decrease by 22.54%

b) Decrease by 21.62%

c) Decrease by 29.09%

d) Decrease by 75.28%

13.47) A sample of 100 employees of an entity had a mean weight of 170 pounds with a standard deviation of 5 pound. Which of the following sample sizes will result in a confidence interval of the mean ±1 pound for this data at the 90% confidence interval?

a) 3   b) 280

c) 20   d) 68

13.48) A sample of 100 employees of an entity had a mean weight of 170 pounds with a standard deviation of 5 pound. Which of the following sample sizes will result in a confidence interval of the mean ±3 pound for this data at the 95% confidence interval?

a) 3   b) 280

c) 11   d) 68

13.49) Which of the following statements is/are correct in regards the sampling distribution of the mean?

(i) The sampling distribution of the mean is a normal distribution

(ii) The mean of the sampling distribution of the mean is the same as the mean of the population

a) Both statements are correct   b) Both statements are not correct

c) Only statement (i) is correct   d) Only statement (ii) is correct

13.50) Which of the following statements is/are correct about random sample?

(i) It is bias free sample

(ii) It is not suitable for investigators who are interested in issues related to subgroups of a population.

a) Both statements are correct   b) Both statements are not correct

c) Only statement (i) is correct   d) Only statement (ii) is correct

13.51) Which of the following statements is/are correct about sampling distribution?

(i) The mean of a sampling distribution is the same as the mean of the population

(ii) Sampling distribution is symmetrical about its mean

a) Both statements are correct   b) Both statements are not correct

c) Only statement (i) is correct   d) Only statement (ii) is correct

13.52) Which of the following statements is/are correct about random sample?

(i) It is bias free sample

(ii) Where every member of the population has an equal chance of being selected as a member of the sample.

a) Both statements are correct   b) Both statements are not correct

c) Only statement (i) is correct   d) Only statement (ii) is correct

13.53) Which of the following statements about Sampling distribution of the means is/are correct?
   (i) The standard deviation of the sampling distribution is called standard error.
   (ii) The standard deviation of the sampling distribution of the mean is the same as the standard deviation of the population.

   a) Both statements are correct
   b) Both statements are not correct
   c) Only statement (i) is correct
   d) Only statement (ii) is correct

13.54) Consider the following sample: 4.5, 4.9, 5.2, 5.6, 6.2 With 95% confidence level, the population mean is between?
   a) 3.94 & 6.62
   b) 5.92 & 6.08
   c) 4.47 & 6.09
   d) 5.22 & 6.08

13.55) Which of the following about cluster sampling is/are correct.
   (i) It is useful when all data of individuals of population are not given.
   (ii) It is type of multistage sampling.

   a) Both statements are correct
   b) Both statements are not correct
   c) Only statement (i) is correct
   d) Only statement (ii) is correct

13.56) Which of the following statements is/are correct in regards the sampling distribution of the mean?
   (i) The standard deviation of the sampling distribution of the mean is the same as the standard deviation of the population.
   (ii) The sampling distribution of the mean is not a normal distribution.

   a) Both statements are correct
   b) Both statements are not correct
   c) Only statement (i) is correct
   d) Only statement (ii) is correct

Chapter-14
Hypothesis Testing:

14.1) A significance level of 0.01 means that?
   a) there are 1% chances that null hypothesis will be rejected
   b) 1% probability of incorrectly acceptance of null Hypothesis
   c) 99% confidence that null Hypothesis is false
   d) None of these

14.2) level of significance is also referring as
   a) probability of Type I error
   b) Probability of acceptance area
   c) Probability of type II Error
   d) probability of other than rejection area

14.3) The probability of rejecting a True hypothesis:
   a) Level of significance
   b) Level of confidence
   c) Type-I error
   d) Both (a) and (c)

14.4) A significance level of 0.05 means that?
   a) there is more than 95% chances that the null hypothesis is false
   b) If null hypothesis is rejected, there is a maximum chance of 5% that the decision may be wrong
   c) If null hypothesis is accepted, there is a maximum chance of 5% that the decision may be wrong
   d) If type II error is made, there is 95% chance of making a type I error too.

14.5) "The machine is working properly with the same average output level as given is last year" The above statement represents:
   a) statistical hypotheses
   b) null hypothesis
   c) alternate hypothesis
   d) All of these

14.6) "Recent bomb blasts in capital cities will decrease 10% votes of PMLN" The above statement expresses
   a) null hypothesis
   b) inferential statistics
   c) hypothesis testing
   d) None of these

14.7) If we increase the level of significance, the range of acceptance region is:
   a) Increased
   b) Decreased
   c) No change
   d) None of these

14.8) If you want to test the claim that automobile is driven on the average more than 20,000 km per year. The null and alternative hypothesis will be

a) $\mu = 20,000$ $\mu \neq 20,000$

b) $\mu > 20,000$ $\mu \neq 20,000$

c) $\mu = 20,000$ $\mu > 20,000$

d) $\mu = 20,000$ $\mu < 20,000$

14.9) Which of the following construction of null and alternative hypothesis is/are correct? Please note that population mean in both cases is 36.

(i) The sample data provide evidence that the population mean is less than 36. Therefore, H0: $\mu < 36$ H1: $\mu \leq 36$

(ii) The sample data provide evidence that the population mean is greater than 36. Therefore, H0: $\mu \leq 36$ H1: $\mu > 36$

a) Only case (ii) is correct

b) Both cases are not correct

c) Only case (i) is correct

d) Both cases are correct

14.10) Which of the following construction of null and alternative hypothesis is/are correct? Please note that population mean in both cases is 36.

(i) The sample data provide evidence that the population mean is not equal to 36. Therefore, H0: $\mu = 36$,   H1: $\mu \neq 36$

(ii) The sample data provide evidence that the population mean is less than 36. Therefore, H0: $\mu < 36$,   H1: $\mu \leq 36$

a) Only case (ii) is correct

b) Both cases are not correct

c) Only case (i) is correct

d) Both cases are correct

14.11) Which of the following construction of null and alternative hypothesis is/are correct? Please note that population mean in both cases is 36.

(i) The sample data provide evidence that the population mean is less than 36. Therefore, H0: $\mu \neq 36$,   H1: $\mu = 36$

(ii) The sample data provide evidence that the population mean is less than 36. Therefore, H0: $\mu = 36$,   H1: $\mu < 36$

a) Only case (i) is correct

b) Both cases are not correct

c) Only case (ii) is correct

d) Both cases are correct

14.12) A medicine company claims that average alcohol in their medicine is atmost 0.767 ml. In order to test the claim a sample of 45 units is selected having average alcohol content of 0.78mg and S.D = 0.02 test the claim at $\alpha = 0.05$.

a) We accepted Ho by Z = 4.36

b) We rejected Ho by Z = 4.36

c) We rejected Ho by Z = 6.36

d) We accepted Ho by Z = 6.36

14.13) Given population mean 0.676 and standard deviation 0.06. A sample of 16 values is selected and average was found to be 0.70 test the hypothesis at $\alpha=5\%$ you are required to find which of the following statement(s) is/are correct

a) Null hypothesis = H_0 = 0.676

b) Critical value from table is 1.96

c) Calculated value of test statistic = 1.6

d) All are correct

14.14) Which of the following is test at value of μ
a) z-test

b) test of good fit

c) t-test

d) both a and c

14.15) Which distribution is more accurate while testing the difference of proportions in larger samples
a) z-test

b) student's distribution

c) chi-square

d) probability distribution

14.16) T test depends on:
a) Population size

b) Sample size

c) Variance population

d) Standard deviation

14.17) T- distribution is used when
a) Sample size is < 30

b) Sample size is > 30

c) Sample size is < 30 & Sigma is unknown

d) Sample size is < 30 & Sigma is known

14.18) T-test may be used to test the hypothesis regarding:
a) Sample mean

b) Population variance

c) Population mean

d) Population standard deviation.

14.19) Which of the following statements is correct as regard t distribution?
a) it varies with sample size.
b) referring to t distributions rather than a single t distribution leads to inaccuracy.
c) As the sample size decreases the t distribution approaches the normal distribution.
d) number of degrees of freedom is equal to the sample size.

14.20) Degree of freedom exists in....
a) T- test

b) Goodness of fit test

c) Z – test

d) Both a & b

14.21) If we increase the level of significance, the range of acceptance region is

a) Increased
b) Decreased
c) No change
d) None

14.22) The probability of rejecting a True hypothesis

a) Level of significance
b) Level of confidence
c) Type-I error
d) Both (a) and (c)

14.23) If $\alpha = 0.05$ what will be the value of z from table in a two-tail test

a) 2.33
b) 1.96
c) 1.58
d) 2.28

14.24) An IQ test is administered by a testing center. The mean score of tests is 100 and standard deviation is 15. If Saad's mean score is -1.20. What was his score in IQ test?

a) 78
b) 90
c) 82
d) 110

14.25) D-electric claims that its energy saver bulbs have an average life of 8000 hours. A consumer rights protection agency tested 15 such bulbs to check this claim. It found that the mean life of 15 bulbs was 7800 hours with a standard deviation of 200 hours. Assume that life of such bulbs has an approximately normal distribution. At 5% significance level, on assuming the claim of D-electric we:

a) Rejects the D-electric claim as number of standard errors between the sample means and asserted mean is beyond the table value of t-statistic which is -1.7611
b) Accept the D-electric claim as number of standard errors between the sample means and asserted mean is within the table value of t-statistic which is -1.7611
c) Accept the D-electric claim as number of standard error between the sample means and asserted mean is -3.8730 which is within the table value of t-statistic which is -2.1458
d) Rejects the D-electric claim as number of standard error between the sample means and asserted mean is 3.8730 which is greater than the table value of t-statistic which is -2.1458

14.26) The manager of a fitness club claims that new entrants lose more than 25% of their weight within 3 months of joining the club. A sample of 25 new entrant shows that on average they lost 23.5% of their weight with a standard deviation of 2.5%. The calculated and the table value of 't' in this case at 0.05 level of significance is:

a) -3.0 and 2.0639
b) 3.0 and 2.0639
c) 3.0 and 1.7109
d) -3.0 and 1.7109

14.27) A pharmaceutical company claims that the amount of alcohol in each bottle of a drug is 0.750 ml. A random sample of 50 bottles of that drugs was tested and found to have mean alcohol contents of 0.767 ml with a standard deviation of 0.06 ml. If we test the company's claim at 6% level significance, which of the following statement will become true?

a) Reject the company's claim as calculated value of Z is more than table value of Z

b) Calculated value of Z is 1.985

c) Table value of Z is 1.96

d) All of the above

14.28) A pharmaceutical company claims that amount of alcohol in a particular drug is 0.706mg. a sample of size 38 is selected to test the claim and its mean = 0.705mg and standard deviation is 0.02mg. level of significance is 0.05. which of the following statement is/are correct?

Statement 1: calculated value of test statistics is 0.308
Statement 2: tabulated value is 1.96
Statement 3: claim is accepted

a) 1,2

b) 2,3

c) 1,3

d) All of the above

14.29) An automobile company reports that the average annual maintenance cost for its 1100 cc car is currently Rs.11,025. A random sample of 100 customers has mean annual maintenance of Rs.11,418 and standard deviation of Rs.1,775. The calculated and table values of z in this case at 1% level of significance is?

a) -2.214, 2.576

b) 2.214, 2.330

c) -2.214, 2.330

d) 2.214, 2.576

Chapter-15
Chi – Square Testing:

15.1) Which one is correct about Chi-Square

a) mean > mode   b) Positively skewed distribution

c) Range from 0 to $+\infty$ d) **All of these**

15.2) Chi Square distribution is used to test the hypothesis concerning:

a) The independence of two attributes   b) Goodness of Fit

c) Population mean for large sample size   d) **(a)and (b) but not (c)**

15.3) A college management wants to assess the intelligence of class students, for this purpose which of the following distribution will be used?

a) T-test   b) Z-test

c) X^2 **test**   d) None

15.4) Yates correction is applied in case of:

a) Poisson Distribution   b) Binomial Distribution

c) **Chi-square Distribution**   d) Normal Distribution

15.5) The "Yates" continuity correction:

a) **Reduce the numerical value of the difference between actual and estimated value by 0.5 regardless of the sign of the numerical value**

b) Increase the numerical value of the difference between actual and estimated value by 0.5 regardless of the sign of the numerical value

c) Reduce the numerical value of the difference between actual and estimated value by 0.5 only if actual value is greater than estimated value.

d) Reduce the numerical value of the difference between actual and estimated value by 0.5 only if actual value is less than estimated value.

15.6) A statistician wants to test whether intelligence levels of college students of two different cities are different or not.
The above test would require the use of:

a) **Chi-square testing**   b) Test of goodness of fit

c) Z-test   d) T-test

15.7) The term degree of freedom is used with reference to:

a) Test of goodness of fit   b) Z-test and test of goodness of fit

c) **T-test and test of goodness of fit**   d) T-test and Z-test

15.8) Which of the following is continuous distribution?
a) Z-distribution
b) T-distribution
c) Chi-square distribution
d) **All of these**

15.9) To test similarity between two same or different variables which of the following test is used
a) T-test
b) Z-test
c) x^2 test
d) None

15.10) A group of people were surveyed about their favourite car. The following results were obtained:

Gender	Frequency		
	Civic	Corolla	Suzuki
Female	26	14	5
Male	27	37	11

Using Chi-square test at 5% level of significance, if we have to test the hypothesis that the choice of favourite car is independent of one's gender, which of the following is true?

a) Degree of freedom is 3
b) Calculated value of chi-square is 5.99
c) **Sum of expected values for two rows is 45 and 75**
d) Favourite car is independent of one's gender as calculated value of Chi-square is greater than its tabulated value

15.11) A group of people were surveyed about their favourite car. The following results were obtained:

Gender	Frequency		
	Civic	Corolla	Suzuki
Female	26	14	5
Male	27	37	11

Using Chi-square test at 5% level of significance, if we have to test the hypothesis that the choice of favourite car is independent of one's gender, which of the following is true?

a) Degree of freedom is 3
b) **Calculated value of chi-square is 5.48**
c) Favourite car is not independent of one's gender as calculated value of Chi-square is greater than its table value.
d) Favourite car is independent of one's gender as calculated value of Chi-square is greater than its tabulated value

5.12) The average performance of the students of a college over last 10 years shows that the percentages of students securing A,B and C grades are 15%, 30% and 55% respectively. The current year's result shows that out of total 400 students, the number of students securing A,B and C grades aggregated to 64, 144 and 192 respectively. Calculated value of chi square for this data would be?

a) 3.44

b) 2.24

c) **8.63**

d) 8.16

5.13) The average performance of the students of a college over last 10 years shows that the percentages of students securing A, B and C grades are 10%, 40% and 50% respectively. The current year's result shows that out of total 400 students, the number of students securing A, B and C grades aggregated to 64, 144 and 192 respectively. Calculated value of chi square for this data would be?

a) **16.32**

b) 2.24

c) 8.63

d) 8.16

5.14) The average performance of the students of a college over last 10 years shows that the percentages of students securing A,B and C grades are 10%, 15% and 75% respectively. The current year's result shows that out of total 500 students, the number of students securing A,B and C grades aggregated to 64, 88 and 348 respectively. Calculated value of chi square for this data would be?

a) 6.52

b) 2.24

c) **8.12**

d) 7.23

5.15) The average performance of the students of a college over last 10 years shows that the percentages of students securing A,B and C grades are 10%, 40% and 50% respectively. The number of students securing A,B and C grades aggregated to 88, 188 and 280 respectively. Calculated value of chi square for this data would be?

a) 3.44

b) **24.22**

c) 8.63

d) 8.16

(The End)
(Talib - e - Dua)
[MY Prayers are with you]

[Statistics, Important Questions] [KEY]

Chapter-07
Collection and Presentation of Data:

7.1)	D	**7.2)**	C	**7.3)**	D	**7.4)**	C
7.5)	B	**7.6)**	ORDINAL DATA	**7.7)**	CROSS-SECTIONAL	**7.8)**	A,D
7.9)	C	**7.10)**	B	**7.11)**	D	**7.12)**	A
7.13)	B	**7.14)**	A	**7.15)**	A	**7.16)**	C
7.17)	D	**7.18)**	C	**7.19)**	D	**7.20)**	B
7.21)	D	**7.22)**	C	**7.23)**	D	**7.24)**	D
7.25)	A	**7.26)**		**7.27)**		**7.28)**	

Chapter-08
Statistical Measures of Data:

8.1)	B	**8.2)**	D	**8.3)**	D	**8.4)**	B
8.5)	C	**8.6)**	C	**8.7)**	C	**8.8)**	B
8.9)	D	**8.10)**	B	**8.11)**	D	**8.12)**	B
8.13)	C	**8.14)**	C	**8.15)**	C	**8.16)**	D
8.17)	B	**8.18)**	C	**8.19)**	A	**8.20)**	C
8.21)	C	**8.22)**	C	**8.23)**	C	**8.24)**	B
8.25)	C	**8.26)**	C	**8.27)**	A	**8.28)**	A
8.29)	D	**8.30)**	A	**8.31)**	A	**8.32)**	C
8.33)	A	**8.34)**	C	**8.35)**	A	**8.36)**	B
8.37)	B	**8.38)**	C	**8.39)**	B	**8.40)**	B
8.41)	B	**8.42)**	B	**8.43)**	B	**8.44)**	C
8.45)	B	**8.46)**	A	**8.47)**	A	**8.48)**	D
8.49)	C	**8.50)**	A	**8.51)**	D	**8.52)**	C
8.53)	B	**8.54)**	A	**8.55)**	B	**8.56)**	D

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8.57)	B	8.58)	B	8.59)	C	8.60)	B
8.61)	D	8.62)	B	8.63)	A	8.64)	B
8.65)	C	8.66)	C	8.67)	B	8.68)	A
8.69)	A	8.70)	D	8.71)	D	8.72)	C

Chapter-09
Indices:

9.1)	C	9.2)	B	9.3)	B	9.4)	C
9.5)	A	9.6)	C	9.7)	C	9.8)	B
9.9)	A	9.10)	A	9.11)	A	9.12)	D
9.13)	C	9.14)	C	9.15)	D	9.16)	Rs.45,871.56
9.17)	B	9.18)	B	9.19)	C	9.20)	A
9.21)	D	9.22)	B	9.23)	C	9.24)	B
9.25)	C	9.26)	C	9.27)	D	9.28)	A
9.29)	A	9.30)		9.31)		9.32)	

Chapter-10
Correlation & Regression:

10.1)	D	10.2)	C	10.3)	D	10.4)	D
10.5)	B	10.6)	A	10.7)	C	10.8)	C
10.9)	B	10.10)	B	10.11)	B	10.12)	B
10.13)	D	10.14)	A	10.15)	D	10.16)	D
10.17)	B	10.18)	C	10.19)	B	10.20)	B
10.21)	C	10.22)	D	10.23)	B	10.24)	A
10.25)	B	10.26)	D	10.27)	C	10.28)	C
10.29)	B	10.30)	C	10.31)	B	10.32)	D
10.33)	C	10.34)	D	10.35)	B	10.36)	D
10.37)	B	10.38)	A	10.39)	C	10.40)	A
10.41)	B	10.42)	D	10.43)	C	10.44)	B
10.45)	B	10.46)	C	10.47)	A	10.48)	B

10.49)	A	10.50)	B	10.51)	C	10.52)	B
10.53)	A	10.54)	A	10.55)	C	10.56)	B
10.57)	A	10.58)	D	10.59)	C	10.60)	C
10.61)	A	10.62)	D	10.63)	C	10.64)	B
10.65)	D	10.66)	A	10.67)	D	10.68)	D
10.69)	A	10.70)	B	10.71)	B	10.72)	A
10.73)	D	10.74)	A	10.75)	D	10.76)	D
10.77)	B	10.78)	D	10.79)		10.80)	

Chapter-11

Probability Concepts:

11.1)	C	11.2)	A	11.3)	B	11.4)	B
11.5)	C	11.6)	B	11.7)	B	11.8)	C
11.9)	C	11.10)	D	11.11)	B	11.12)	C
11.13)	B	11.14)	C	11.15)	C	11.16)	C
11.17)	C	11.18)	D	11.19)	B	11.20)	B
11.21)	B	11.22)	A	11.23)	C	11.24)	B
11.25)	A	11.26)	A	11.27)	B	11.28)	D
11.29)	B	11.30)	D	11.31)	B	11.32)	C
11.33)	A	11.34)	B	11.35)	C	11.36)	A
11.37)	D	11.38)	D	11.39)	B	11.40)	C
11.41)	C	11.42)	C	11.43)	D	11.44)	A
11.45)	B	11.46)	C	11.47)	A	11.48)	C
11.49)	B	11.50)	D	11.51)	D	11.52)	A

Chapter-12

Probability Distributions:

12.1)	A	**12.2)**	D	**12.3)**	B	**12.4)**	C
12.5)	A	**12.6)**	B	**12.7)**	A	**12.8)**	C
12.9)	D	**12.10)**	B	**12.11)**	D	**12.12)**	D
12.13)	A	**12.14)**	C	**12.15)**	A	**12.16)**	A
12.17)	B	**12.18)**	A	**12.19)**	B	**12.20)**	A
12.21)	A	**12.22)**	C	**12.23)**	B	**12.24)**	B
12.25)	D	**12.26)**	B	**12.27)**	C	**12.28)**	D
12.29)	C	**12.30)**	A	**12.31)**	D	**12.32)**	B
12.33)	B	**12.34)**	B	**12.35)**	B	**12.36)**	D
12.37)	D	**12.38)**	A	**12.39)**	D	**12.40)**	C
12.41)	B	**12.42)**	A	**12.43)**		**12.44)**	

Chapter-13

Sampling & Estimation:

13.1)	A	**13.2)**	D	**13.3)**	A	**13.4)**	B
13.5)	B	**13.6)**	C	**13.7)**	B	**13.8)**	A
13.9)	B	**13.10)**	C	**13.11)**	C	**13.12)**	C
13.13)	B	**13.14)**	B	**13.15)**	B	**13.16)**	A
13.17)	A	**13.18)**	B	**13.19)**	C	**13.20)**	A
13.21)	C	**13.22)**	B	**13.23)**	C	**13.24)**	C
13.25)	C	**13.26)**	A	**13.27)**	C	**13.28)**	B
13.29)	D	**13.30)**	C	**13.31)**	B	**13.32)**	B
13.33)	C	**13.34)**	B	**13.35)**	A	**13.36)**	D
13.37)	C	**13.38)**	A	**13.39)**	A	**13.40)**	B
13.41)	C	**13.42)**	A	**13.43)**	C	**13.44)**	C
13.45)	C	**13.46)**	A	**13.47)**	A	**13.48)**	C
13.49)	A	**13.50)**	A	**13.51)**	A	**13.52)**	A
13.53)	C	**13.54)**	C	**13.55)**	B	**13.56)**	B

Chapter-14
Hypothesis Testing:

14.1)	A	14.2)	A	14.3)	D	14.4)	C
14.5)	B	14.6)	B	14.7)	B	14.8)	C
14.9)	A	14.10)	C	14.11)	C	14.12)	B
14.13)	D	14.14)	D	14.15)	A	14.16)	B
14.17)	C	14.18)	C	14.19)	A	14.20)	D
14.21)	B	14.22)	D	14.23)	B	14.24)	C
14.25)	D	14.26)	C	14.27)	A	14.28)	D
14.29)	D	14.30)		14.31)		14.32)	

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