CA FOUNDATION JUNE 24

100 MARKS MARATHON

इंद्रधनुष

SERIES

QUANTITATIVE APTITUDE

* Concept Marathon — 11:30 hr
* Practice Marathon — 171 Ques.
* MTP → 1 2 3
* SSN
* Calc. Tricks

Ratio Proportion Indices and Logarithm

QUESTION 01

P, Q and R three cities. The ratio of average temperature between P and Q is 11: 12 and that between P and R is 9:8. The ratio between the average temperature Q and R

a 22 : 27

b 27 : 22

c 32 : 33

d None of these

$P : Q = 11 : 12 \Rightarrow Q : P = 12 : 11$

$P : R = 9 : 8$

$Q : R \Rightarrow Q \times P : P \times R = 12 \times 9 : 11 \times 8$

$\Rightarrow \frac{Q \times P}{P \times R} = \frac{12 \times 9}{11 \times 8}$

$\Rightarrow Q : R = 27 : 22$

QUESTION 01

P, Q and R three cities. The ratio of average temperature between P and Q is 11: 12 and that between P and R is 9:8. The ratio between the average temperature Q and R

a 22 : 27

b 27 : 22

c 32 : 33

d None of these

QUESTION 02

A number consists of two digits. The digits in tens place is 3 times the digit in the unit's place. If 54 is subtracted from the digits are reversed. The number is

a ~~39~~ $9 \times 3 = 27$

b ~~92~~ $2 \times 3 = 6$

c 93 $3 \times 3 = 9$

d 94 $93 - 54 = 39$

xy 23 46

$x = 3y$

$xy - 54 = yx$

QUESTION 02

A number consists of two digits. The digits in tens place is 3 times the digit in the unit's place. If 54 is subtracted from the digits are reversed. The number is

a 39

b 92

c 93

d 94

QUESTION 03

The ages of two persons are in the ratio 5 : 7. Eighteen years ago their ages were in the ratio of 8 : 13, their present ages (in years) are :

a 50,70 $50:70 = 5:7$

b 70,50 $70:50 = 7:5 \neq 5:7$

c 40,56 $\frac{40}{8} : \frac{56}{8} = 5:7$

d None of these

$$\frac{5K - 18}{7K - 18} = \frac{8}{13}$$

A $\frac{50 - 18}{70 - 18} = \frac{32}{52} = \frac{8}{13} = R.H.S$

QUESTION 03

The ages of two persons are in the ratio 5 : 7. Eighteen years ago their ages were in the ratio of 8 : 13, their present ages (in years) are :

a 50,70

b 70,50

c 40,56

d None of these

QUESTION 04

If $x : y = 3 : 4$, the value of $x^2y + xy^2 : x^3 + y^3$ is

a 13 : 12

b 12 : 13

c 21 : 31

d None of these

$x : y = 3 : 4$

$x = 3k$

$y = 4k$

$$\frac{x^2y + xy^2}{x^3 + y^3} = \frac{(3k)^2(4k) + (3k)(4k)^2}{(3k)^3 + (4k)^3}$$

$$= \frac{(9k^2)(4k) + (3k)(16k^2)}{27k^3 + 64k^3}$$

$$\Rightarrow \frac{k^3(36) + k^3(48)}{91k^3} = \frac{84k^3}{91k^3} = \frac{12}{13} = 12:13$$

QUESTION 04

If $x : y = 3 : 4$, the value of $x^2y + xy^2 : x^3 + y^3$ is

a 13 : 12

b 12 : 13

c 21 : 31

d None of these

QUESTION 05

A box contains 276 coins of 5 rupees, 2 rupees and 1 rupee. The value of each kind of coins are in the ratio 2 : 3 : 5 respectively. The number of 2 rupees coin is

a. 52

b. 60

c. 76

d. 85

	Value	No. of coin
5	$\rightarrow$ 2K	2K/5 = 0.4K
2	$\rightarrow$ 3K	3K/2 = 1.5K
1	$\rightarrow$ 5K	5K/1 = 5K

$0.4K + 1.5K + 5K = 276$

$6.9K = 276$

$K = \frac{276}{6.9} = 40$

2 $\rightarrow$ 1.5(40) = 60

QUESTION 05

A box contains 276 coins of 5 rupees, 2 rupees and 1 rupee. The value of each kind of coins are in the ratio 2 : 3 : 5 respectively. The number of 2 rupees coin is

a 52

b 60

c 76

d 85

QUESTION 06

If four numbers $\frac{1}{2}, \frac{1}{3}, \frac{1}{5}, \frac{1}{x}$ are proportional then x =

a 6/5

b 5/6

c 15/2

d None

$$\frac{1}{2} : \frac{1}{3} = \frac{1}{5} : \frac{1}{x}$$

$$\Rightarrow \left(\frac{\frac{1}{2}}{\frac{1}{3}} = \frac{\frac{1}{5}}{\frac{1}{x}}\right) \Rightarrow \frac{3}{2} = \frac{x}{5}$$

$$\Rightarrow x = \frac{5 \times 3}{2} = \frac{15}{2}$$

QUESTION 06

If four numbers $\frac{1}{2}, \frac{1}{3}, \frac{1}{5}, \frac{1}{x}$ are proportional then x =

a 6/5

b 5/6

c 15/2

d None

QUESTION 07

What is the value of $\frac{p+q}{p-q}$ if $\frac{p}{q} = 7$

a. 4/3

b. 2/3

c. 2/6

d. 7/8

$$\frac{p}{q} = \frac{7}{1}$$

$$\Rightarrow \frac{p+q}{p-q} = \frac{7+1}{7-1} \Rightarrow \frac{p+q}{p-q} = \frac{8}{6} = \frac{4}{3}$$

QUESTION 07

What is the value of $\frac{p+q}{p-q}$ if $\frac{p}{q} = 7$

a 4/3

b 2/3

c 2/6

d 7/8

QUESTION 08

The mean proportional between $12x^2$ and $27y^2$

a. 18 xy

b. 81 xy

c. 8xy

d. 9xy

a, b, c

$b^2 = ac = (12x^2)(27y^2)$

$b^2 = 324\, x^2 y^2$

$b = \sqrt{18^2 x^2 y^2} = \sqrt{(18xy)^2}$

$\Rightarrow b = 18xy$

QUESTION 08

The mean proportional between $12x^2$ and $27y^2$

a 18 xy

b 81 xy

c 8xy

d 9xy

QUESTION 9

If $a^x = b$, $b^y = c$, $c^z = a$, then xyz is

a 1

b 2

c 3

d None of these

$a^x = b$, $(b)^y = c$, $c^z = a$

$(a^x)^y = c$

$\Rightarrow a^{xy} = c$

$(a^{xy})^z = a$

$\Rightarrow a^{xyz} = a^1$

$\Rightarrow xyz = 1$

QUESTION 9

If $a^x = b$, $b^y = c$, $c^z = a$, then xyz is

a 1

b 2

c 3

d None of these

QUESTION 10

If $(25)^{150} = (25x)^{50}$; then the value of x will be

a. 5^3

b. 5^4

c. 5^2

d. 5

*

$$(25)^{150} = (25x)^{50}$$

$$\Rightarrow (25)^{3\times 50} = (25x)^{50}$$

$$\Rightarrow (25^3)^{50} = (25x)^{50}$$

$$\Rightarrow 25^3 = 25x$$

$$\Rightarrow x = \frac{25^3}{25^1} = 25^2 = (5^2)^2 = 5^4$$

QUESTION 10

If $(25)^{150} = (25x)^{50}$; then the value of x will be

a 5^3

b 5^4

c 5^2

d 5

QUESTION 11

If $\log\frac{a-b}{2} = \frac{1}{2}(\log a + \log b)$, then value of $a^2 + b^2$ is

- **a** 6ab
- **b** 8ab
- **c** $6a^2b^2$
- **d** None of these

$$\log\left(\frac{a-b}{2}\right) = \cdot \log(a\cdot b)^{\frac{1}{2}}$$

$$\Rightarrow (a-b)^2 = \left(2(a\cdot b)^{\frac{1}{2}}\right)^2$$

$$\Rightarrow a^2+b^2-2ab = 4(ab)^{\frac{1}{2}\times 2}$$

$$\Rightarrow a^2+b^2 = 2ab+4ab = 6ab$$

QUESTION 11

If $\log\frac{a-b}{2} = \frac{1}{2}(\log a + \log b)$, then value of $a^2 + b^2$ is

a 6ab

b 8ab

c $6a^2b^2$

d None of these

QUESTION 12

The value of $\log_{0.1} 0.001$ =

$\log_{0.1}(0.1)^3 = 3\left(\log_{0.1} 0.1\right)$

$= 3(1) = 3$

$0.001 = \frac{1}{1000} = \left(\frac{1}{10}\right)^3 = (0.1)^3$

- **a** 3
- **b** 2
- **c** 4
- **d** 1/3

QUESTION 12

The value of $\log_{0.1} 0.001$ =

a 3

b 2

c 4

d 1/3

QUESTION 13

$120 = 2 \times 2 \times 3 \times 10$

Given that $\log_{10}2 = x$ and $\log_{10}3 = y$, the value of $\log_{10}120$ is expressed as

a $2x - y + 1$

b $2x + y + 1$

c $2x - y - 1$

d None of these

$$\log_{10}120 = \log_{10}(2 \times 2 \times 3 \times 10)$$

$$= \log_{10}2 + \log_{10}2 + \log_{10}3 + \log_{10}10$$

$$= \log_{10}10 = 1$$

$$\Rightarrow x + x + y + 1$$

$$\Rightarrow 2x + y + 1$$

QUESTION 13

Given that $\log_{10}2 = x$ and $\log_{10}3 = y$, the value of $\log_{10}120$ is expressed as

a $2x - y + 1$

b $2x + y + 1$

c $2x - y - 1$

d None of these

QUESTION 14

If $\frac{1}{2}\log_{10}4 = y$ and $\frac{1}{2}\log_{10}9 = x$ then the value of $\log_{10}15$

a $x - y + 1$

b $x + y - 1$

c $x + y + 1$

d $y - x + 1$

$\log_{10} 4^{\frac{1}{2}} = y \Rightarrow \log_{10} 2 = y$

$\log_{10} 9^{\frac{1}{2}} = x \Rightarrow \log_{10} 3 = x$

$\log_{10} 15 = \log_{10} \frac{30}{2}$

$\Rightarrow \log_{10} 30 - \log_{10} 2$

$\Rightarrow \log_{10}(3 \times 10) - \log_{10} 2$

$\Rightarrow \log_{10} 3 + \log_{10} 10 - \log_{10} 2$

$\Rightarrow x + 1 - y \Rightarrow x - y + 1$

QUESTION 14

If $\frac{1}{2}\log_{10}4 = y$ and $\frac{1}{2}\log_{10}9 = x$ then the value of $\log_{10}15$

a $x - y + 1$

b $x + y - 1$

c $x + y + 1$

d $y - x + 1$

QUESTION 15

$\log_4(x^2 + x) - \log_4(x + 1) = 2$, find x

a 16

b 0

c -1

d None of these

$$\log_4\left(\frac{x^2+x}{x+1}\right) = 2$$

$$\Rightarrow \log_4\left(x\left(\frac{x+1}{x+1}\right)\right) = 2$$

$$\Rightarrow \log_4 x = 2$$

$$\Rightarrow x = 4^2 = 16$$

$$\log_a x = n \Rightarrow a^n = x$$

QUESTION 15

$\log_4(x^2 + x) - \log_4(x + 1) = 2$, find x

a 16

b 0

c –1

d None of these

COMING SOON.!!

CA INTERMEDIATE

Mathematics of Finance

QUESTION 16

Sachin deposited Rs.1,00,000 in his bank for 2 years at simple interest of 6%. How much interest would be he earns? How much final value of deposit

P t r

a. Rs. 6,000, Rs, 1,06,000

b. Rs. 15,000, Rs. 1,15,000

c. Rs. 11,600, Rs. 1,11,600

d. Rs. 12,000, Rs. 1, 12,000

$SI = P \times t \times r\% = 100000 \times 2 \times 6\% = ₹12000$

$A = P + SI = 100000 + 12000$

$= ₹112000$

QUESTION 16

Sachin deposited Rs.1,00,000 in his bank for 2 years at simple interest of 6%. How much interest would be he earns? How much final value of deposit

a Rs. 6,000, Rs, 1,06,000

b Rs. 15,000, Rs. 1,15,000

c Rs. 11,600, Rs. 1,11,600

d **Rs. 12,000, Rs. 1, 12,000**

QUESTION 17

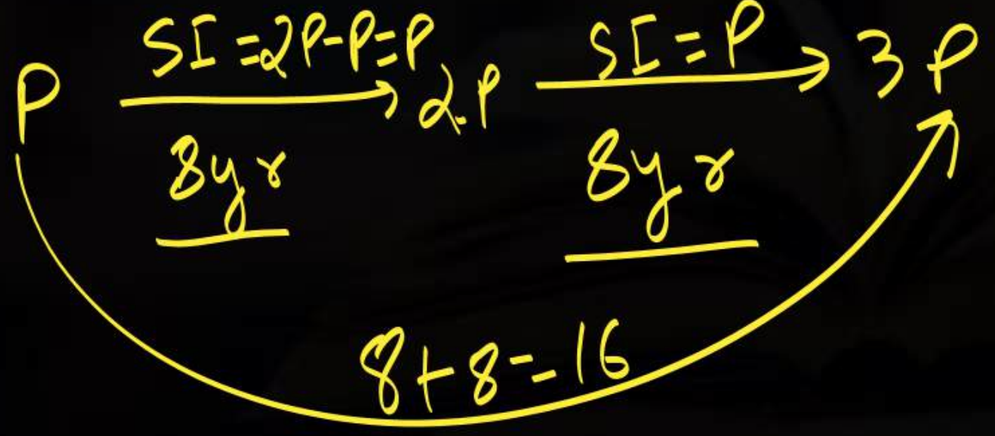
A sum of money, lent out at simple interest, doubles itself in 8 years. Find in how many years will the sum become triple (three times) of itself at the same rate per cent ?

a 16 years

b 15 years

c 20 years

d None



QUESTION 17

A sum of money, lent out at simple interest, doubles itself in 8 years. Find in how many years will the sum become triple (three times) of itself at the same rate per cent ?

a **16 years**

b 15 years

c 20 years

d None

QUESTION 18

The simple interest on sum of money at 6% p.a for 7 years is equal to twice of simple interest on another sum for 9 years at 5 % p.a. The ratio will be

a 2 : 15

b 7 : 15

c **15 : 7**

d 1 : 7

$$SI_1 = 2(SI_2)$$

$$\frac{P_1 \times 6 \times 7}{100} = 2\left(\frac{P_2 \times 5 \times 9}{100}\right)$$

$$\frac{P_1}{P_2} = \frac{2 \times 5 \times 3}{42} = \frac{15}{7} = 15:7$$

QUESTION 18

The simple interest on sum of money at 6% p.a for 7 years is equal to twice of simple interest on another sum for 9 years at 5 p.a. The ratio will be

a 2 : 15

b 7 : 15

c **15 : 7**

d 1 : 7

QUESTION 19

A certain sum of money was put at S.I. for 2.5 years at a certain rate of S.I. p.a. Had it been put at 4% higher rate, it would have fetched Rs. 500 more. Find the sum of money.

extra

extra unit

a. Rs. 4000

b. Rs. 5000

c. Rs. 6000

d. None

$SI = 500$

$r = 4\%$

$t = 2.5$

$$\frac{P \times 4 \times 2.5}{100} = 500$$

$$\Rightarrow P \times \frac{10}{10\phi} = 500$$

$$\Rightarrow P = 500 \times 10 = 5000$$

QUESTION 19

A certain sum of money was put at S.I. for 2.5 years at a certain rate of S.I. p.a. Had it been put at 4% higher rate, it would have fetched Rs. 500 more. Find the sum of money.

a Rs. 4000

b **Rs. 5000**

c Rs. 6000

d None

QUESTION 20

Nominal rate of Interest is 9.9% p.a. If interest is compounded monthly, what will be effective rate of Interest.

a 10.36%

b 9.36%

c 11.36%

d 9.9%

$C = 12$

$$E.R.I = \left(\left(1 + \frac{r}{100 \cdot C}\right)^{C} - 1\right) \times 100$$

$$= \left(\left(1 + \frac{9.9}{100 \times 12}\right)^{12} - 1\right) \times 100$$

$$= \left(\left(1.00825\right)^{12} - 1\right) \times 100$$

$$= 10.36\%.$$

QUESTION 20

Nominal rate of Interest is 9.9% p.a. If interest is compounded monthly, what will be effective rate of Interest.

a 10.36%

b 9.36%

c 11.36%

d 9.9%

QUESTION 21

Arslan invested 10,000 at 8% per annum compound quarterly, then the value of the investment after 2 years is [given $(1.02)^8 = 1.171659$]

$C = 4$

- **a** Rs. 11, 716.59
- **b** Rs. 10, 716.59
- **c** Rs. 117.1659
- **d** None of the above

$10000 \xrightarrow[r=8\%,\ C=4]{t=2\text{ yrs}} A$

$n = 2 \times 4 = 8$

$i = \frac{8}{100 \times 4} = 0.02$

$A = 10000(1+0.02)^8$

$= ₹\,11716.59$

QUESTION 21

Arslan invested 10,000 at 8% per annum compound quarterly, then the value of the investment after 2 years is [given $(1.02)^8 = 1.171659$]

a **Rs. 11, 716.59**

b Rs. 10, 716.59

c Rs. 117.1659

d None of the above

QUESTION 22

What will be the population after 3 years, when present population is 1,00,000 and the population increases at 3% in year 1st year, at 4% in second year and 5% in third year.

CI

a 1,12,476

b 1,15,476

c 1,20,576

d 1, 25, 600

100000 + 3% + 4% + 5%

= 112476

QUESTION 22

What will be the population after 3 years, when present population is 1,00,000 and the population increases at 3% in year 1st year, at 4% in second year and 5% in third year.

a **1,12,476**

b 1,15,476

c 1,20,576

d 1, 25, 600

QUESTION 23

A machine worth of Rs. 4,90,740 is depreciated at 15% on its opening value each year. When its value reduces to Rs. 2,00,000

$r = -15\%$ $\quad C = 1$

a 4 years 6 months

b 4 years 7 months

c 4 years 5 months

d 5 years 7 months approximately

$$200000 = 490740\left(1 + \frac{(-15)}{100 \times 1}\right)^t$$

$$\log 0.40754 = \log(0.85)^t$$

$$t \log 0.85 = \log 0.40754$$

$$\Rightarrow t = \frac{\log 0.40754}{\log 0.85} = \frac{-0.3898}{-0.0706} = 5.5$$

QUESTION 23

A machine worth of Rs. 4,90,740 is depreciated at 15% on its opening value each year. When its value reduces to Rs. 2,00,000

a. 4 years 6 months

b. 4 years 7 months

c. 4 years 5 months

d. **5 years 7 months approximately**

QUESTION 24

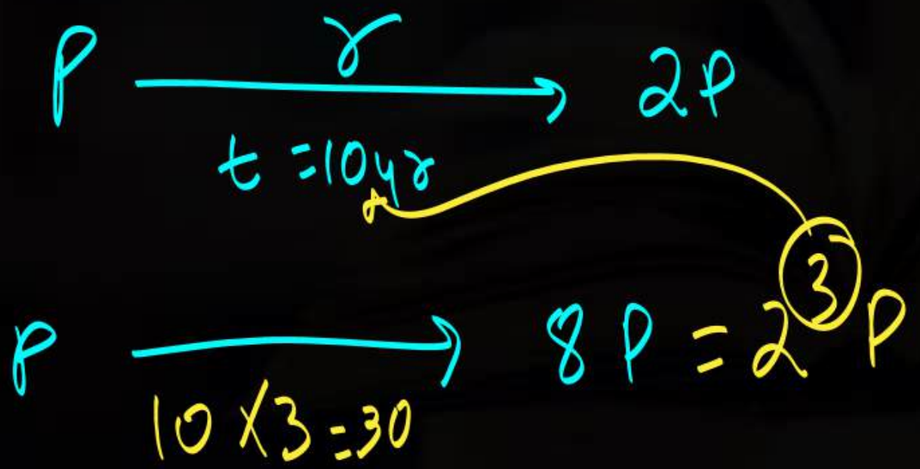
A sum of Money doubles itself at compound interest in 10 years. In how many years will it become eight times

a 10

b 30

c 40

d 35



QUESTION 24

A sum of Money doubles itself at compound interest in 10 years. In how many years will it become eight times

a 10

b **30**

c 40

d 35

QUESTION 25

The difference between compound interest and simple interest on a certain sum for 2 years @ 10% p.a. is 100. Find the sum:

a. Rs. 10,100

b. Rs. 10,950

c. Rs. 10,000

d. Rs. 9,900

$$CI - SI = P\left(\left(1+\frac{r}{100}\right)^{t} - 1 - \frac{rt}{100}\right)$$

$$\Rightarrow 100 = P\left(\left(1+\frac{10}{100}\right)^{2} - 1 - \frac{10\times 2}{100}\right)$$

$x = 0.01$

$$\Rightarrow P = \frac{100}{0.01} = ₹10000$$

QUESTION 25

The difference between compound interest and simple interest on a certain sum for 2 years @ 10% p.a. is 100. Find the sum:

a Rs. 10,100

b Rs. 10,950

c **Rs. 10,000**

d Rs. 9,900

QUESTION 26

AR

Rs. 10,000 is invested every month and in an account paying interest @ 12% per annum compounded monthly. What is the future value of this annuity just after making 11th payment" (Given that $(1.01)^{11} = 1.1156$)

a. Rs. 115,600

b. Rs. 156100

c. Rs. 156,800

d. Rs. 157,100

$C = 12$

$A = 10000$

$r = 12\%$

$i = \frac{12}{100 \times 12} = 0.01$

$n = 11$

$$FV = A\left(\frac{(1+i)^n - 1}{i}\right)$$

$$= 10000\left(\frac{(1+0.01)^{11} - 1}{0.01}\right)$$

$$= 115600$$

QUESTION 26

Rs. 10,000 is invested every month and in an account paying interest @ 12% per annum compounded monthly. What is the future value of this annuity just after making 11^{th} payment" (Given that $(1.01)^{11} = 1.1156$)

a **Rs. 115,600**

b Rs. 156100

c Rs. 156,800

d Rs. 157,100

QUESTION 27

AR

How much amount is required to be invested every year so as to accumulate Rs. 5,00,000 at the end of 12 years if interest is compounded annually at 10%

3.1384

a Rs. 23381.65

b Rs. 24385.85

c Rs. 26381.65

d Rs. 28362.75

$A =$

$FV = 500000$

$C = 1$

$t = 12$

$r = 10\%$

$i = \frac{10}{100 \times 1} = 0.1$

$n = 12 \times 1 = 12$

$500000 = A\left(\frac{(1+0.1)^{12}-1}{0.1}\right)$

$\Rightarrow 500000 = A(x)$

$\Rightarrow A = 500000 \times \frac{1}{x} = 23381.65$

$\downarrow$

$x = \frac{1}{} \times 500000$

QUESTION 27

How much amount is required to be invested every year so as to accumulate Rs. 5,00,000 at the end of 12 years if interest is compounded annually at 10%

a **Rs. 23381.65**

b Rs. 24385.85

c Rs. 26381.65

d Rs. 28362.75

QUESTION 28

Find the present value of an ordinary annuity of 8 quarterly payments of Rs. 500 each, the rate of interest being 8% p.a. compound quarterly

- **a** 4275.00
- **b** 4725.00
- **c** 3662.50
- **d** 3266.50

AR

$n = 8$

$A = ₹500$

$r = 8\%$

$c = 4$

$i = \frac{8}{100 \times 4} = 0.02$

$$PV = A\left(\frac{(1+i)^n - 1}{i(1+i)^n}\right)$$

$$= 500\left(\frac{(1+0.02)^8 - 1}{0.02(1+0.02)^8}\right)$$

$= ₹3662.74$

Cal: MRC MRC AC — 1.02 × = = ... → M+ — 1 ÷ 0.02 ÷ MRC × 500 =

QUESTION 28

Find the present value of an ordinary annuity of 8 quarterly payments of Rs. 500 each, the rate of interest being 8% p.a. compound quarterly

a 4275.00

b 4725.00

c **3662.50**

d 3266.50

QUESTION 29

Assuming that the discount rate is 10% per annum, how much would you pay to receive Rs. 800, growing at 8%, annually, forever?

$$PVA_\infty = \frac{A}{i-g} = \frac{800}{0.1-0.08} = \frac{800}{0.02} = 40000$$

a. Rs. 40000

b. Rs. 40500

c. Rs. 39500

d. None of these

$C = 1$

$i = \frac{10}{100 \times 1} = 0.1$

$g = \frac{8}{100 \times 1} = 0.08$

QUESTION 29

Assuming that the discount rate is 10% per annum, how much would you pay to receive Rs. 800, growing at 8%, annually, forever?

a **Rs. 40000**

b Rs. 40500

c Rs. 39500

d None of these

QUESTION 30

Sinking fund factor is the reciprocal of:

a Present value interest factor of a single cash flow

b Present value interest factor of an annuity

c Future value interest factor of an annuity

d Future value interest factor of a single cash flow.

QUESTION 30

Sinking fund factor is the reciprocal of:

a Present value interest factor of a single cash flow

b Present value interest factor of an annuity

c **Future value interest factor of an annuity**

d Future value interest factor of a single cash flow.

QUESTION 31

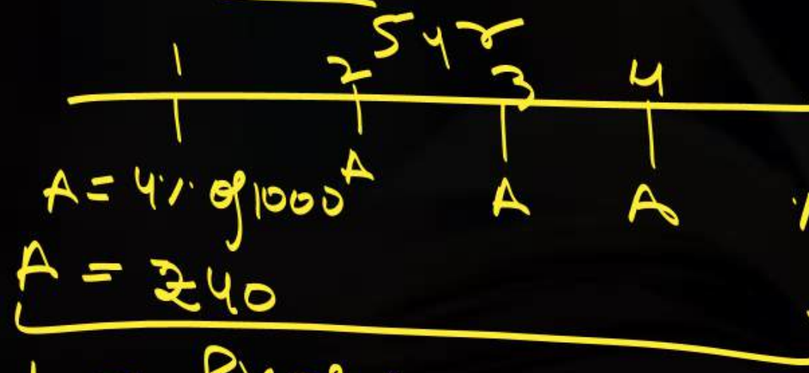
Find the purchase price of a Rs. 1000 bond redeemable at the (5 yr) paying annual dividends at 4% if the yield rate is to be 5% effective.

a. Rs. 884.16

b. Rs. 984.17

c. Rs. 1084.16

d. None of these



$r = 5\%$

$i = \frac{5}{100 \times 1} = 0.05$

$n = 5, \quad n = 5 \times 1 = 5$

Pv of Bond = Pv of ann. + Pv of sing $A_n = 1000$

$$= \frac{A((1+i)^n - 1)}{i(1+i)^n} + \frac{A_n}{(1+i)^n}$$

$$= \frac{40((1+0.05)^5 - 1)}{0.05((1+0.05)^5)} + \frac{1000}{(1+0.05)^5} = 173.18 + 783.5 = 956$$

QUESTION 31

Find the purchase price of a Rs. 1000 bond redeemable at the paying annual dividends at 4% if the yield rate is to be 5% effective.

a Rs. 884.16

b **Rs. 984.17**

c Rs. 1084.16

d None of these

QUESTION 32

Rs. 1,25,000 is borrowed at compound interest at the rate of 2% for the 1st year, 3% for the second year and 4% for the 3rd year. Find the amount to be paid after 3 years.

a. Rs. 125678

b. Rs. 136587

c. Rs. 163578

d. Rs. 136578

125000 + 2% + 3% + 4% = 136578

QUESTION 32

Rs. 1,25,000 is borrowed at compound interest at the rate of 2% for the 1st year, 3% for the second year and 4% for the 3rd year. Find the amount to be paid after 3 years.

a Rs. 125678

b Rs. 136587

c Rs. 163578

d **Rs. 136578**

Number Series , Coding Decoding and Odd Man Out

QUESTION 33

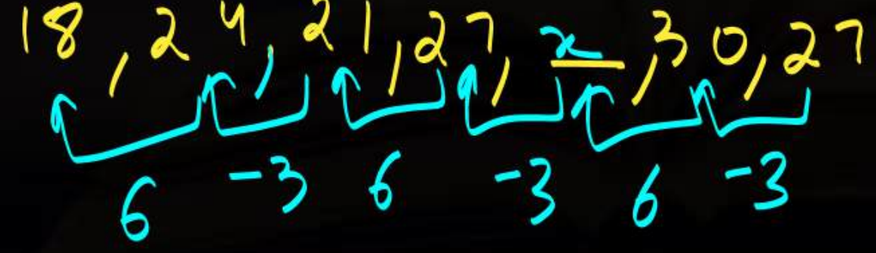
18, 24 , 21, 27, ?, 30 , 27

a 33

b 30

c 24

d 21



$x - 27 = -3$

$x = 27 - 3 = 24$

QUESTION 33

18, 24 , 21, 27, ?, 30 , 27

a 33

b 30

c **24**

d 21

QUESTION 34

If HEALTH is written as GSKZDG, then how will NORTH be written in that code?

a. OPSUI

b. GSQNM

c. FRPML

d. IUSPO

Ulta

HEALTH
↑↑↑↑↑↑
GSKZDG

NORTH
↑↑↑↑↑
GSQNM

*

QUESTION 34

If HEALTH is written as GSKZDG, then how will NORTH be written in that code?

a OPSUI

b **GSQNM**

c FRPML

d IUSPO

QUESTION 35

If GARDEN is coded as 325764 and WATER as 92165, how can we code the word WARDEN in the same way?

a. 925764

b. 295764

c. 952764

d. 957264

425764

QUESTION 35

If GARDEN is coded as 325764 and WATER as 92165, how can we code the word WARDEN in the same way?

a **925764**

b 295764

c 952764

d 957264

QUESTION 36

If F = 6 , MAT = 34 , then how much is CAR?

a. 21

b. 22

c. 25

d. 28

F = 6

MAT = 34

13 + 1 + 20

D H L P T X

4 8 12 16 20 24

C A R

3 + 1 + 18 = 22

QUESTION 36

If F = 6 , MAT = 34 , then how much is CAR?

a 21

b **22**

c 25

d 28

QUESTION 37

Find next term of the series A5A, C10C, E15E, G20G , I 25 I

B D F H

a I25I

b I20I

c J25J

d K20K

QUESTION 37

Find next term of the series A5A, C10C, E15E, G20G -

a **I25I**

b I20I

c J25J

d K20K

QUESTION 38

Find next term of the letter series QPO, NML, KJI, HGF , EDC

a EDC

b HGE

c CAB

d GHI

QUESTION 38

Find next term of the letter series QPO, NML, KJI, HGF ,_____

a **EDC**

b HGE

c CAB

d GHI

QUESTION 39

Find the odd man out : 34, 105, 424, 2125, 12755.

a. 12755

b. 2125

c. 424

d. 34

$34 \times 3 + 3 = 105$

$105 \times 4 + 4 = 424$

$424 \times 5 + 5 = 2125$

$2125 \times 6 \times 6 = 12755$

12756

QUESTION 39

Find the odd man out : 34, 105, 424, 2125, 12755.

a **12755**

b 2125

c 424

d 34

Direction Test

QUESTION 40

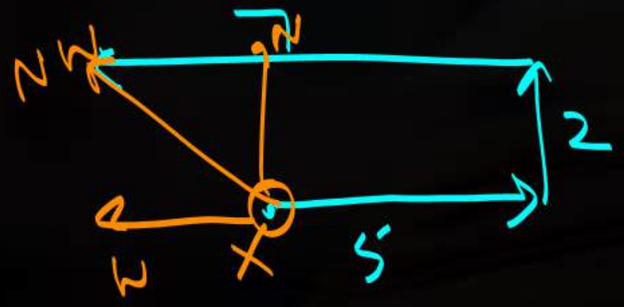
Rahim started from point X and walked straight 5 km East, then turned left and walked straight 2 km. and again turned left and walked straight 7 km. In which direction is he from the point X ?

a North-East

b South-West

c South-East

d North-West



QUESTION 40

Rahim started from point X and walked straight 5 km East, then turned left and walked straight 2 km. and again turned left and walked straight 7 km. In which direction is he from the point X ?

a North-East

b South-West

c South-East

d North-West

QUESTION 41

Praveen is facing west. He turns 45° in the clockwise direction and then again another turns with 180° in the same direction i.e. clockwise direction, after that he turns 270° in the anti-clockwise direction. Which direction is he facing now ?

a North-West

b West

c South-West

d South

$C = 45^\circ + 180^\circ = 225^\circ$

$AC = 270^\circ$

$AC = 270 - 225 = 45^\circ$

QUESTION 41

Praveen is facing west. He turns 45° in the clockwise direction and then again another turns with 180° in the same direction i.e. clockwise direction, after that he turns 270° in the anti-clockwise direction. Which direction is he facing now ?

a North-West

b West

c South-West

d South

QUESTION 42

If A x B means A is to the south of B; A + B means A is to the north of B; A % B means A is to the east of B; A - B means A is to the west of B; then in P % Q + R - S, S is in which direction with respect to Q?

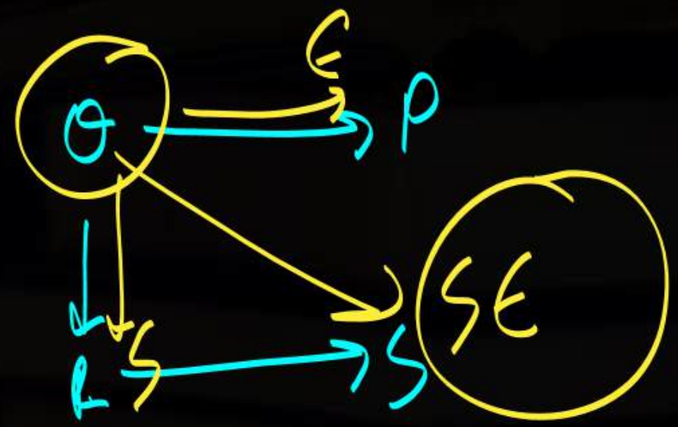
P % Q + R - S

a South-West

b South-East

c North-East

d North-West



QUESTION 42

If A x B means A is to the south of B; A + B means A is to the north of B; A % B means A is to the east of B; A - B means A is to the west of B; then in P % Q + R - S, S is in which direction with respect to Q?

a South-West

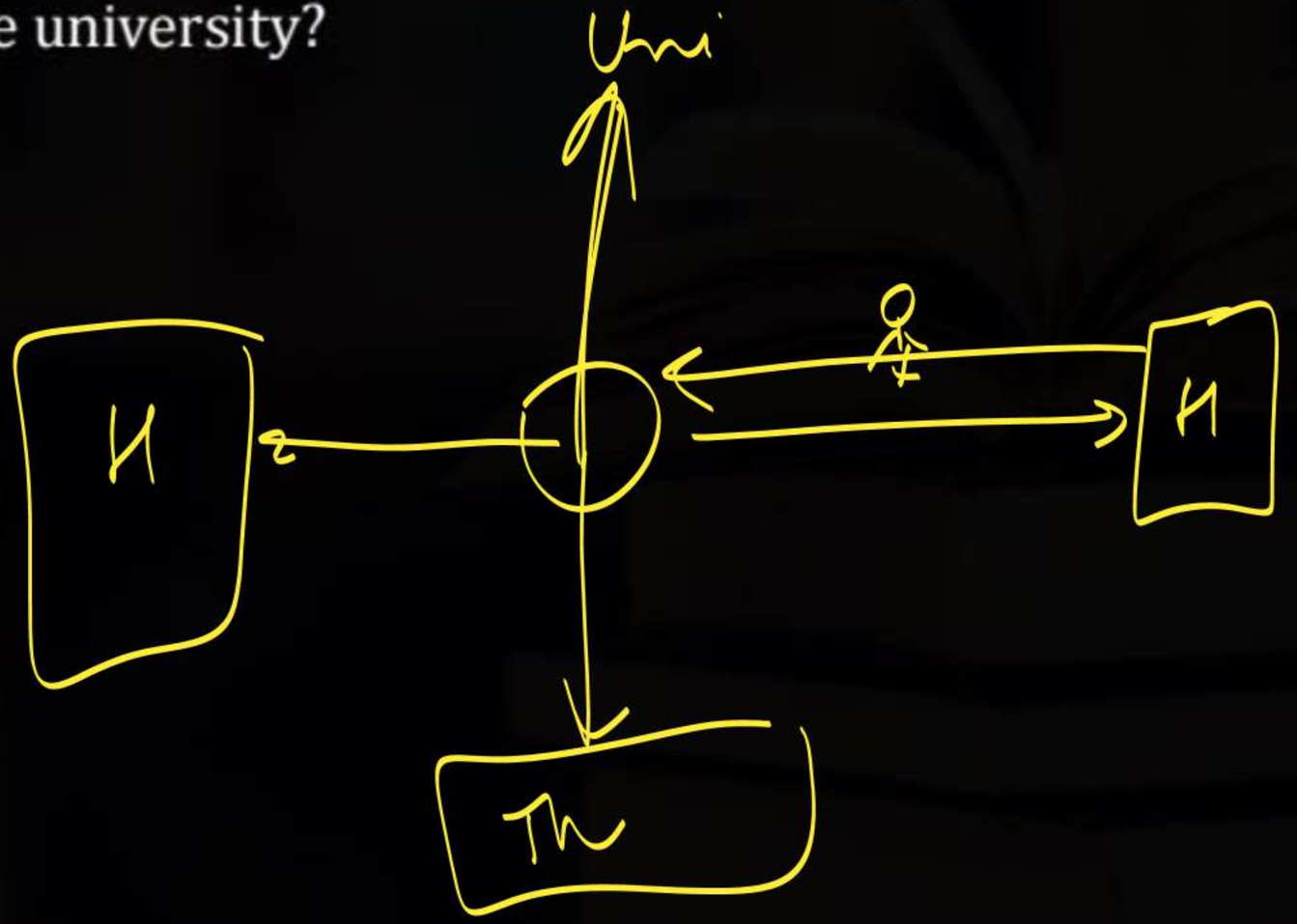
b South-East

c North-East

d North-West

QUESTION 43

Hari in order to go to university started from his house in the east and came to a crossing. The road to the left ends in a theatre, straight ahead is the hospital. In which direction is the university?



a North

b South

c East

d West

QUESTION 43

Hari in order to go to university started from his house in the east and came to a crossing. The road to the left ends in a theatre, straight ahead is the hospital. In which direction is the university?

a North

b South

c East

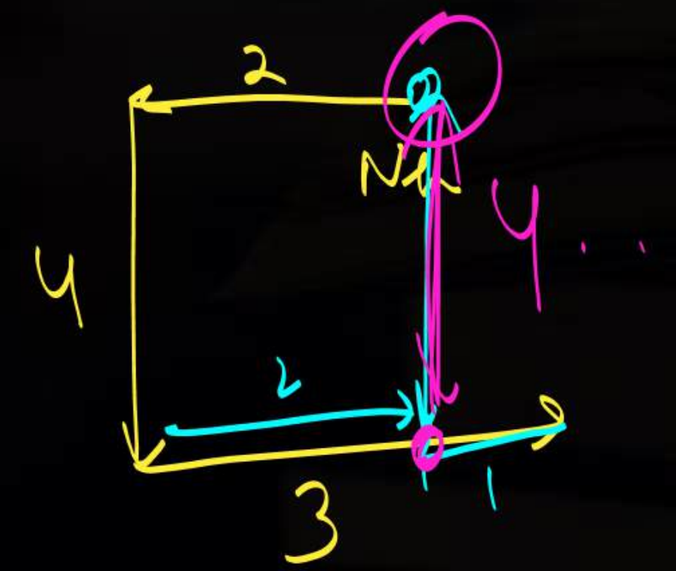
d West

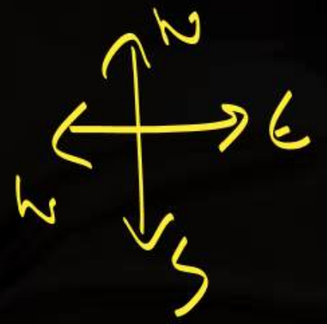
QUESTION 44

2 km west.

Neha walked 2 lane west of her house and then turned south covering 4 km. Finally, she moved 3 km towards east and then again 1 km west. How far is she from her initial position?

- **a** 7 km
- **b** 3 km
- **c** 4 km
- **d** 12 km





QUESTION 44

Neha walked 2 lane west of her house and then turned south covering 4 km. Finally, she moved 3 km towards east and then again 1 km west. How far is she from her initial position?

a 7 km

b 3 km

c 4 km

d 12 km

QUESTION 45

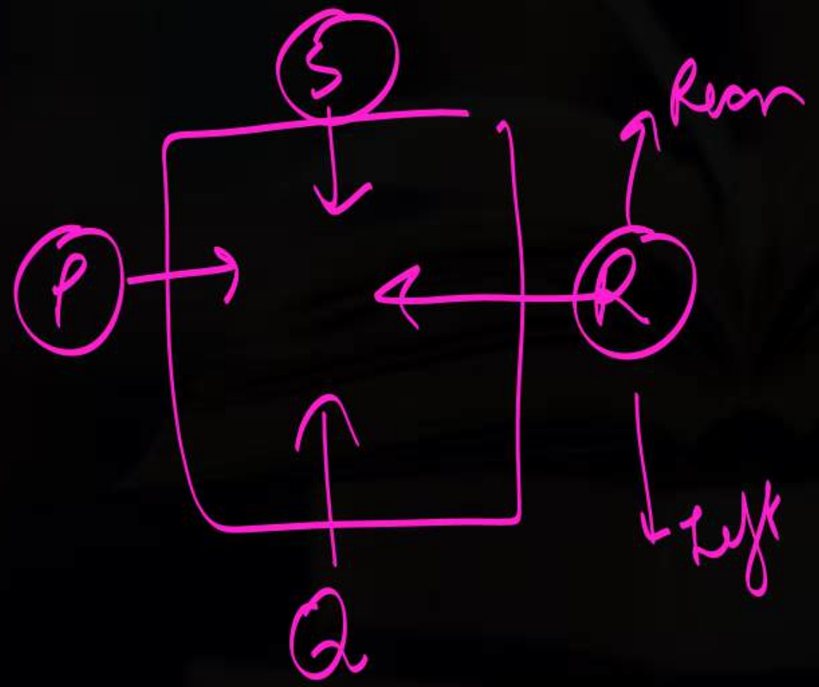
P, Q, R and S are playing a game of carom. P, R and S, Q are partners, 'S' is to the right of 'R'. If R' is facing West, then 'Q' is facing which direction?

a. South

b. North

c. East

d. West



QUESTION 45

P, Q, R and S are playing a game of carom P, R and S, Q are partners, 'S' is to the right of 'R'. If R' is facing West, then 'Q' is facing which direction?

a South

b North

c East

d West

QUESTION 46

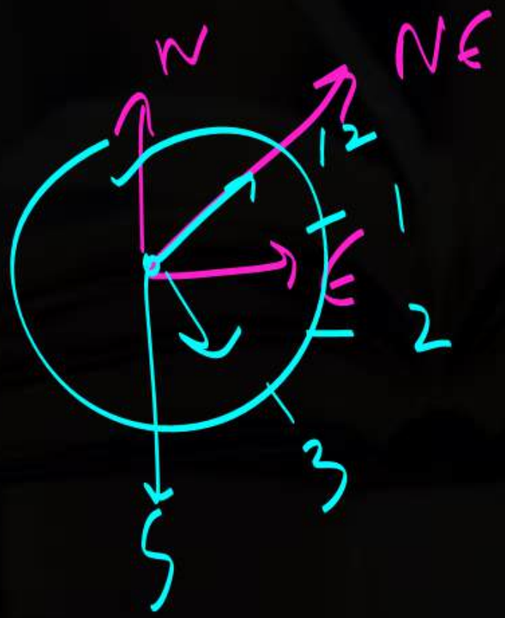
It is 3'o clock in a watch. If the minute hand points towards the North-East then the hour hand will point towards the

a South

b South - West

c North- West

d South - East



QUESTION 46

It is 3'o clock in a watch. If the minute hand points towards the North-East then the hour hand will point towards the

a South

b South - West

c North- West

d South - East

QUESTION 47

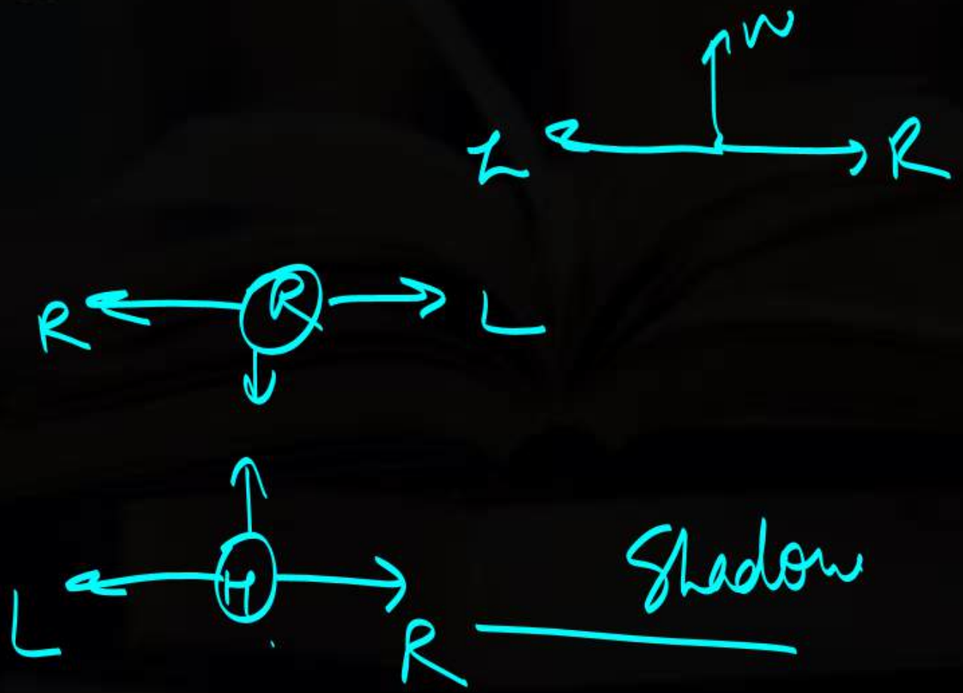
One evening before sunset Rekha and Hema were talking to each other face to face. If Hema's shadow was exactly to the right of Hema, which direction was Rekha facing?

a North

b South

c West

d East



QUESTION 47

One evening before sunset Rekha and Hema were talking to each other face to face. If Hema's shadow was exactly to the right of Hema, which direction was Rekha facing?

a North

b South

c West

d East

Seating Arrangement

QUESTION 48

Five boys A, B, C, D and E are sitting in a row. A is to the right of B, and E is to the left of B but to the right of C. A is to the left of D. Who is second from the left end ?

- **a** D
- **b** A
- **c** E
- **d** B

QUESTION 48

Five boys A, B, C, D and E are sitting in a row. A is to the right of B, and E is to the left of B but to the right of C. A is to the left of D. Who is second from the left end ?

a D

b A

c E

d B

QUESTION 49

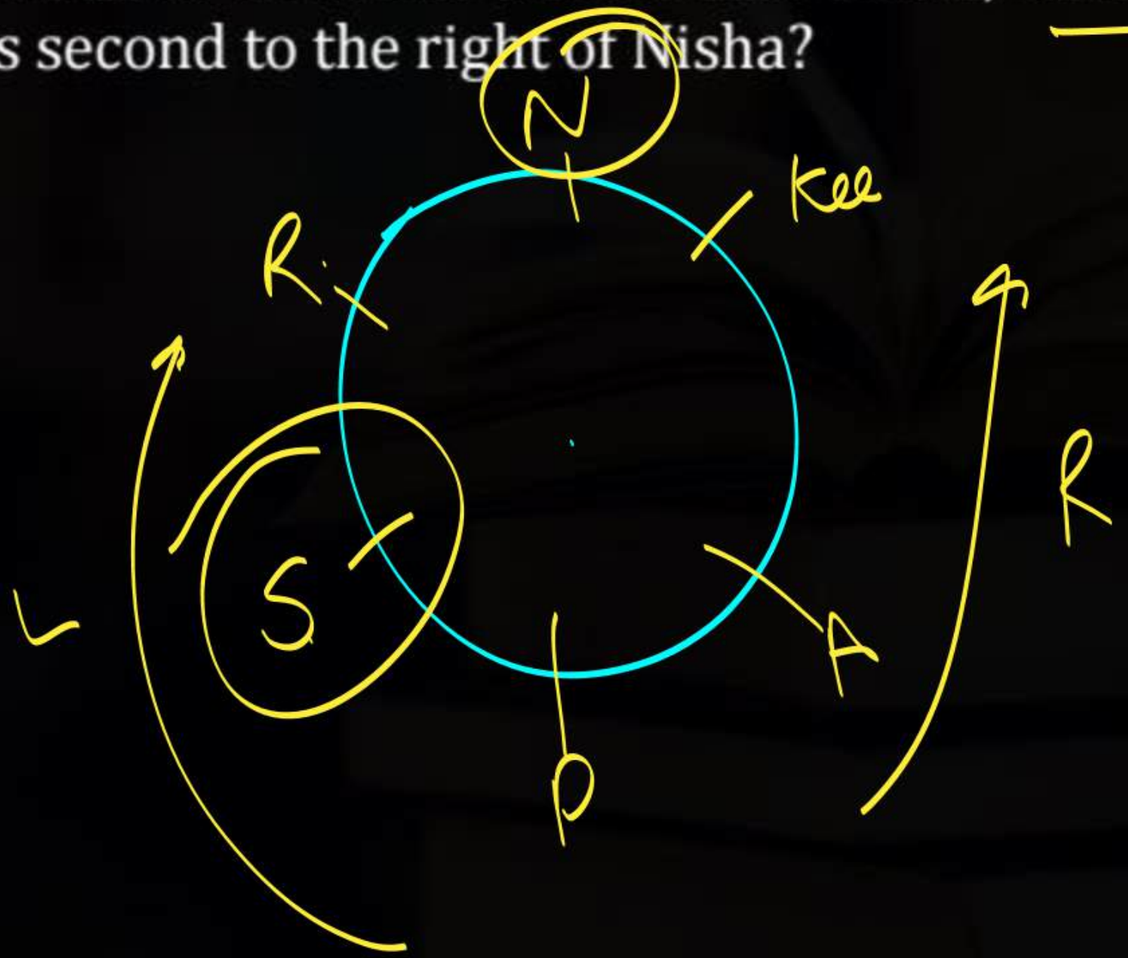
Six girls are standing in such a way that they form a circle, facing the centre. Subbu is to the left of Pappu, Revathi is between Subbu and Nisha, Aruna is between Pappu and Keerthna. Who is second to the right of Nisha?

a Ravathi

b Aruna

c Subbu

d Keerthana



QUESTION 49

Six girls are standing in such a way that they form a circle, facing the centre. Subbu is to the left of Pappu, Revathi is between Subbu and Nisha, Aruna is between Pappu and Keerthna. Who is to the right of Nisha?

a Ravathi

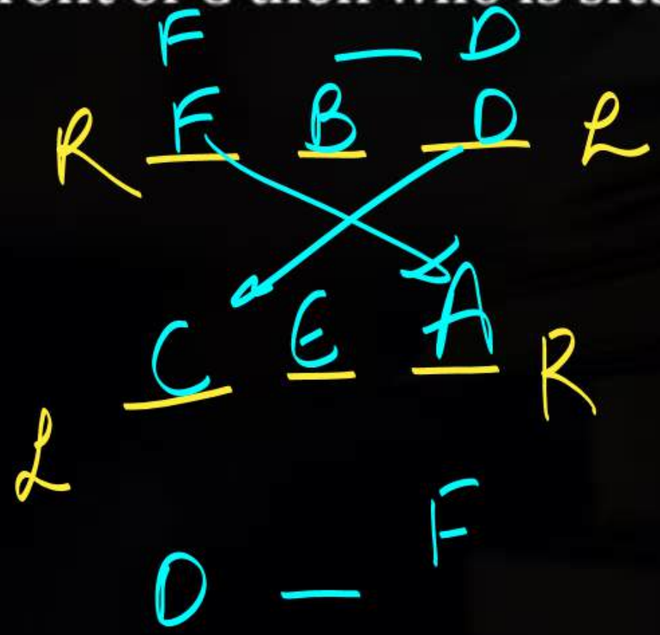
b Aruna

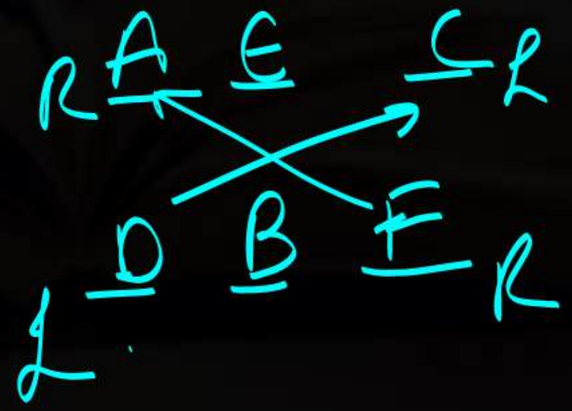
c Subbu

d Keerthana

QUESTION 50

Six persons A, B, C, D, E and F are sitting in two rows with three persons in each row. Both rows are in front of each other. E is not at the end of the any row and D is second left to the F, C is neighbour of E and diagonally opposite to D. If B is neighbour F who is in front of C then who is sitting diagonally to F?





a C

b E

c A

d D

QUESTION 50

Six persons A, B, C, D, E and F are sitting in two rows with three persons in each row. Both rows are inT front of each other. E is not at the end of the any row and D is second left to the F, C is neighbour of E and diagonally opposite to D. If B is neighbour F who is in front of C then who is sitting diagonally to F?

a C

b E

c A

d D

QUESTION 51

Eight leaders P, Q, R, S, T, U, V and W are sitting on a bench facing towards North.

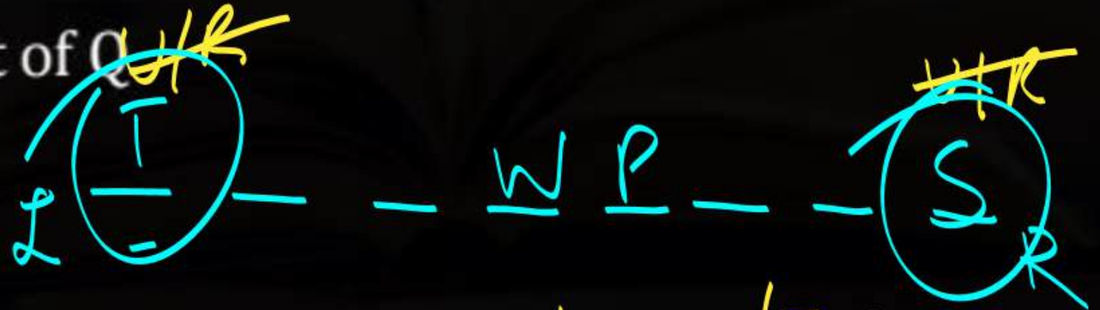
(i) T is fourth to the left of P

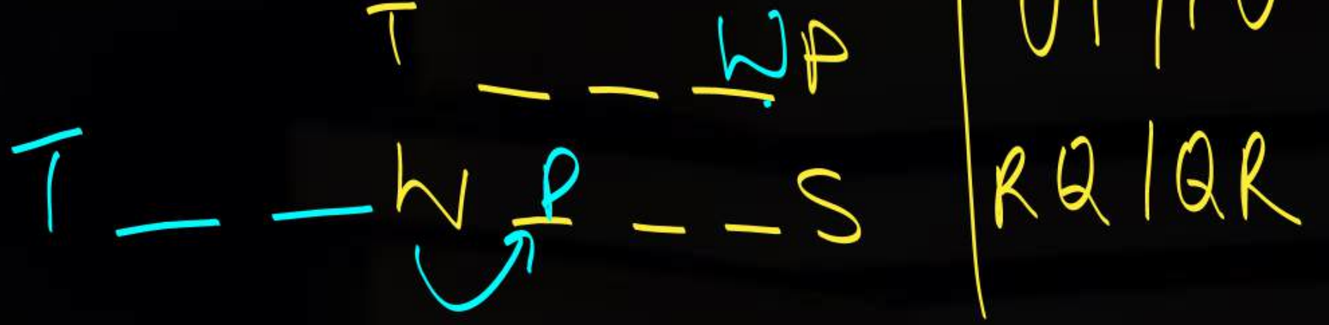
(ii) S is fourth to the right of W

(iii) U and R are not sitting at the ends, but they are neighbours of T and Q respectively.

(iv) P is next to the right of W and but left of Q

Who are sitting at the extreme ends ?





a. T and S

b. P and Q

c. U and R

d. None

QUESTION 51

Eight leaders P, Q, R, S, T, U, V and W are sitting on a bench facing towards North.

(i) T is fourth to the left of P

(ii) S is fourth to the right of W

(iii) U and R are not sitting at the ends, but they are neighbours of T and Q respectively.

(iv) P is next to the right of W and but left of Q.

Who are sitting at the extreme ends ?

a T and S

b P and Q

c U and R

d None

QUESTION 52

Four ladies A, B, C and D and four gentlemen E, F, G and H are sitting in a circle round a table facing each other.

Directions:

(1) No two ladies or two gentlemen are sitting side by side.

(2) C, who is sitting between G and E is facing D.

(3) F is between D and A and is facing G.

(4) H is to the right of B.

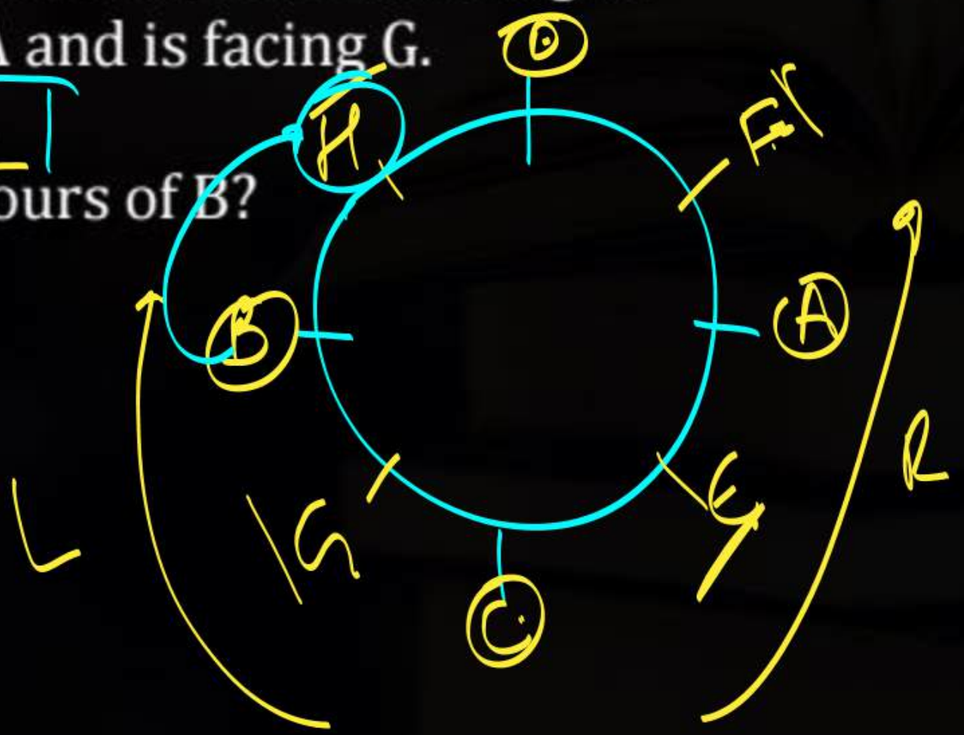
Who are immediate neighbours of B?

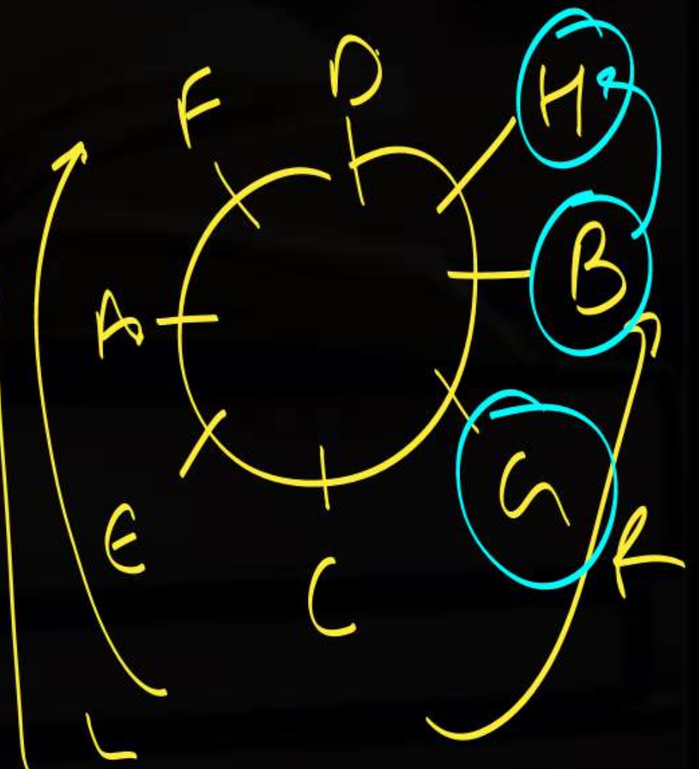
a G and H

b F and H

c E and F

d E and H





QUESTION 52

Four ladies A, B, C and D and four gentlemen E, F, G and H are sitting in a circle round a table facing each other.

Directions:

(1) No two ladies or two gentlemen are sitting side by side.

(2) C, who is sitting between G and E is facing D.

(3) F is between D and A and is facing G.

(4) H is to the right of B.

Who are immediate neighbours of B?

a G and H

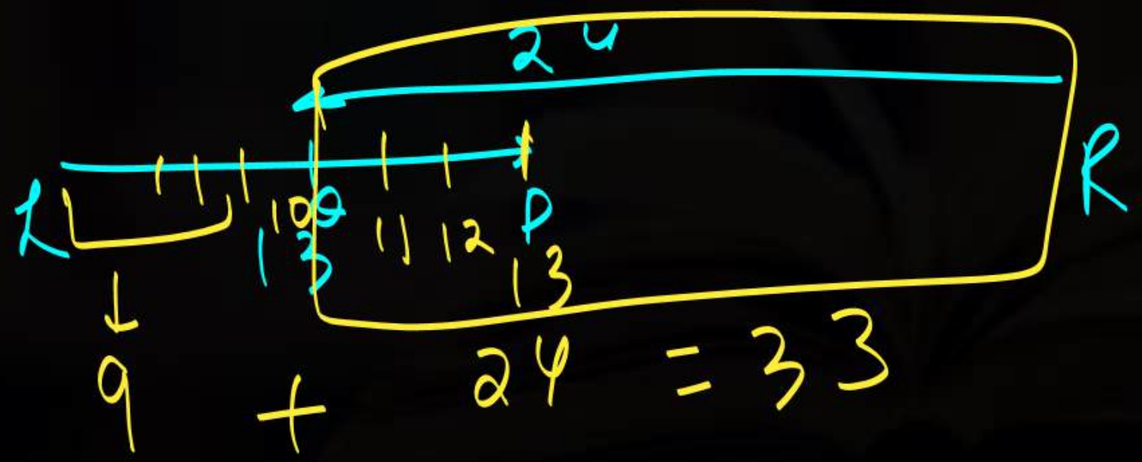
b F and H

c E and F

d E and H

QUESTION 53

In a line, P is sitting 13th from left. Q is sitting 24th from the right and 3rd left from P. How many people are sitting in the line?



a 34

b 31

c 32

d 33

QUESTION 53

In a line, P is sitting 13th from left. Q is sitting 24th from the right and 3rd left from P. How many people are sitting in the line?

a 34

b 31

c 32

d 33

COMING SOON.!!

CA INTERMEDIATE

Blood Relations

QUESTION 54

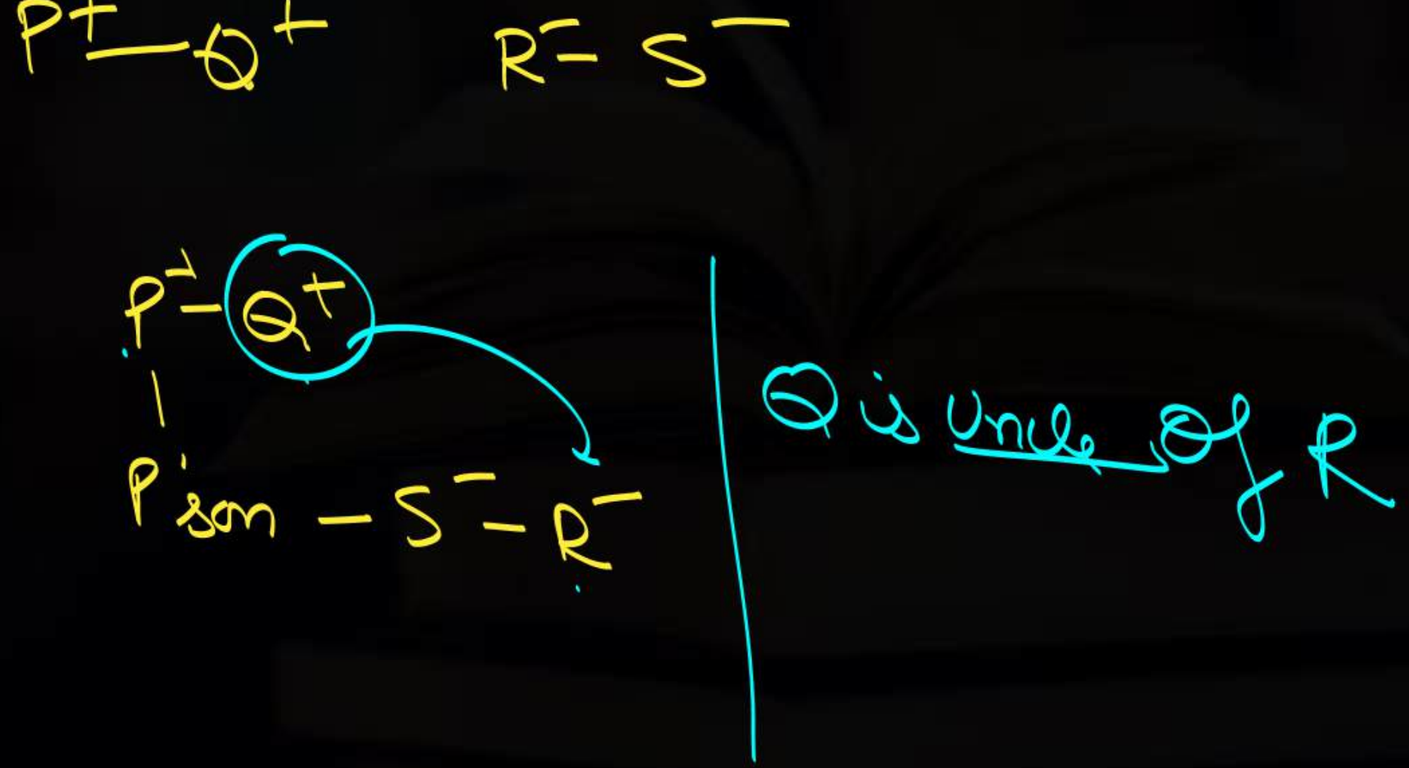
P and Q are brothers. R and S are sister. P's son is S's brother. How is Q related to R?

a Uncle

b Brother

c Father

d Grandfather



QUESTION 54

P and Q are brothers. R and S are sister. P's son is S's brother. How is Q related to R?

a Uncle

b Brother

c Father

d Grandfather

QUESTION 55

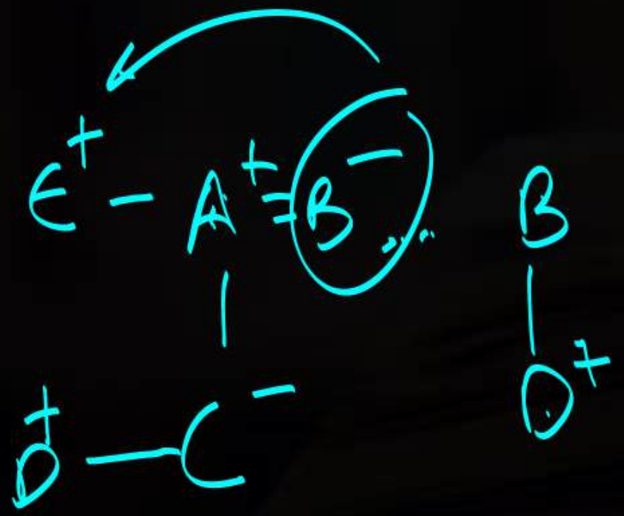
A is the father of C and D is the son of B. E is the brother of A . If C is the sister of D, how is B is related to E?

a Daugher

b Brother-in-law

c Husband

d Sister-in-law



B is Sister in law of E

QUESTION 55

A is the father of C and D is the son of B. E is the brother of A . If C is the sister of D, how is B is related to E?

a Daugher

b Brother-in-law

c Husband

d Sister-in-law

QUESTION 56

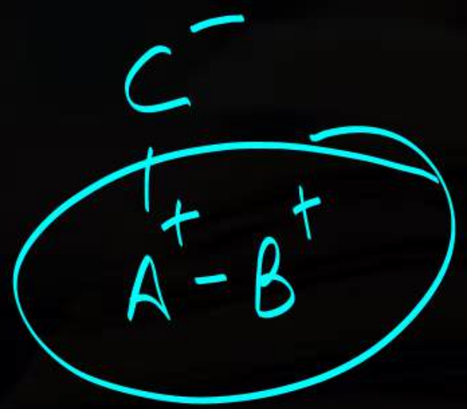
A and B both are children of C. If C is the mother of A, A is the son of C but B is not the daughter of C, then how are A and B mutually related?

a A is the brother of B

b A is the nephew of B

c A is the sister of B

d A is the cousin of B



QUESTION 56

A and B both are children of C. If C is the mother of A, A is the son of C but B is not the daughter of C, then how are A and B mutually related?

a A is the brother of B

b A is the nephew of B

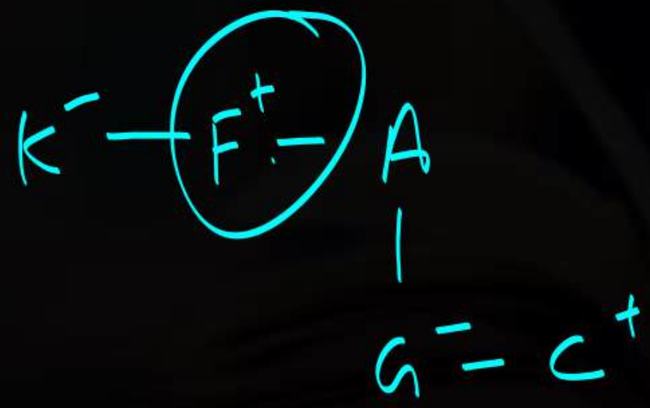
c A is the sister of B

d A is the cousin of B

QUESTION 57

(i) F is the brother of A.
(ii) G is the daughter of A.
(iii) K is the sister of F.
(iv) C is the brother of G.

Who is the uncle of G?



a K

b F

c A

d C

QUESTION 57

(i) F is the brother of A.
(ii) G is the daughter of A.
(iii) K is the sister of F.
(iv) C is the brother of G.

Who is the uncle of G?

a K

b F

c A

d C

QUESTION 58

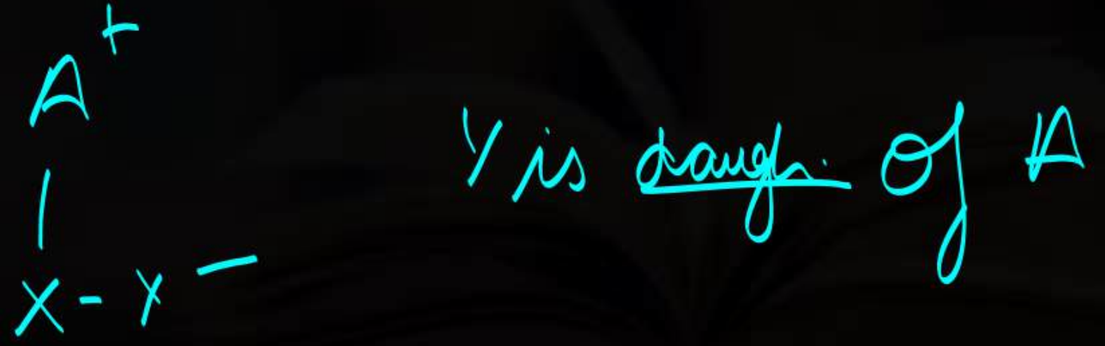
X and Y are the children of A. A is the father of X but Y is not his son. How is Y related to A?

a. Son

b. Daughter

c. Sister

d. Brother



QUESTION 58

X and Y are the children of A. A is the father of X but Y is not his son. How is Y related to A?

a Son

b Daughter

c Sister

d Brother

QUESTION 59

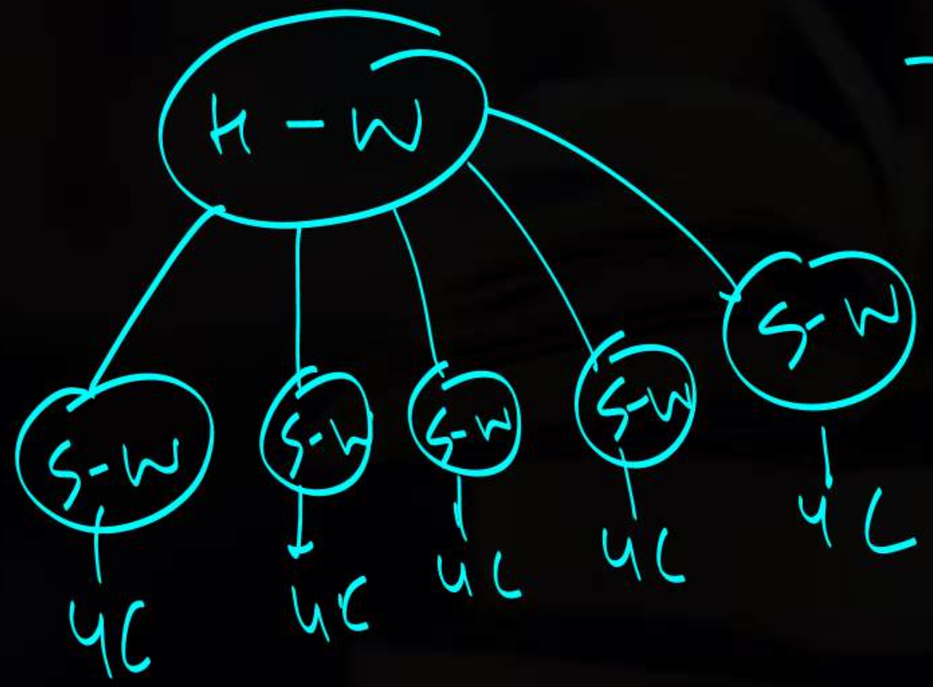
A husband and wife had five married sons and each of these had four ch ildren. How many members are there in the family?

a 50

b 40

c 32

d 36



→ 2

→ 2 x 5 = 10

→ 20

32

QUESTION 59

A husband and wife had five married sons and each of these had four children. How many members are there in the family?

a 50

b 40

c 32

d 36

QUESTION 60

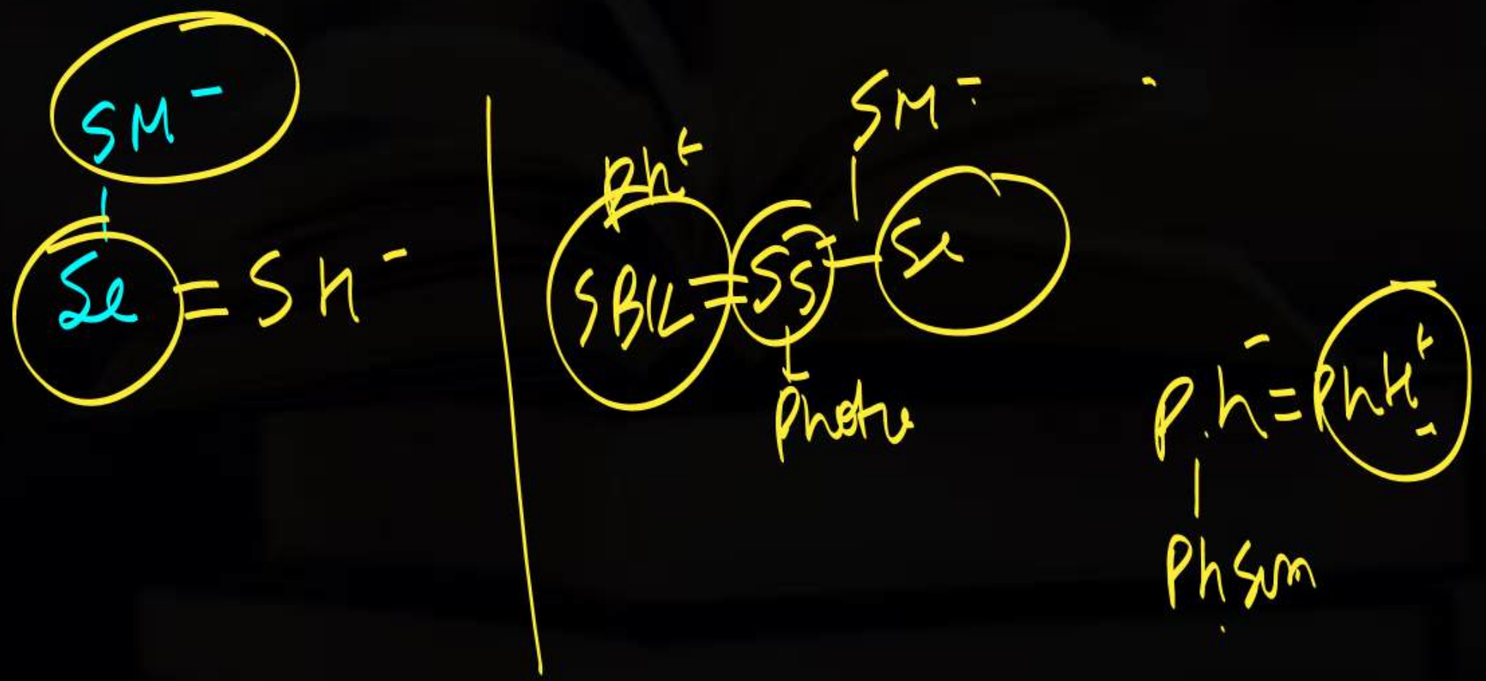
Pointing to the lady in the photograph , Seema said, "~~Her~~ son's father is the son-in-law of ~~my~~ mother." How is Seema related to the lady?

a Sister

b Mother

c Cousin

d Aunt



QUESTION 60

Pointing to the lady in the photograph , Seema said, "Her son's father is the son-in-law of my mother." How is Seema related to the lady?

a Sister

b Mother

c Cousin

d Aunt

QUESTION 61

Pointing to a man, a lady said "~~His~~ mother is the only daughter of ~~my~~ mother". How is the lady related of the man?

Man — Lady

(3) ← (2) Lady ← (1)

Lady is Mother of Man

a. Mother

b. Daughter

c. Sister

d. Aunt

QUESTION 61

Pointing to a man, a lady said "His mother is the only daughter of my mother". How is the lady related of the man?

a Mother

b Daughter

c Sister

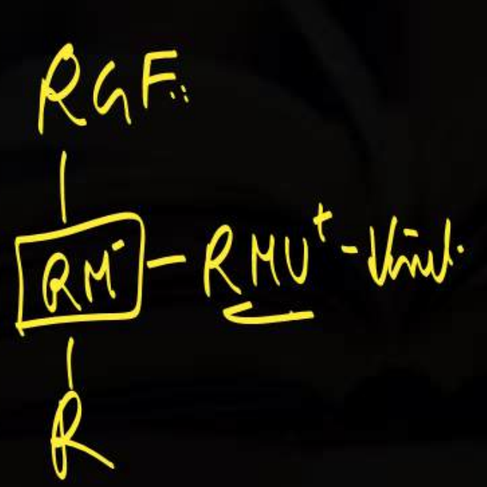
d Aunt

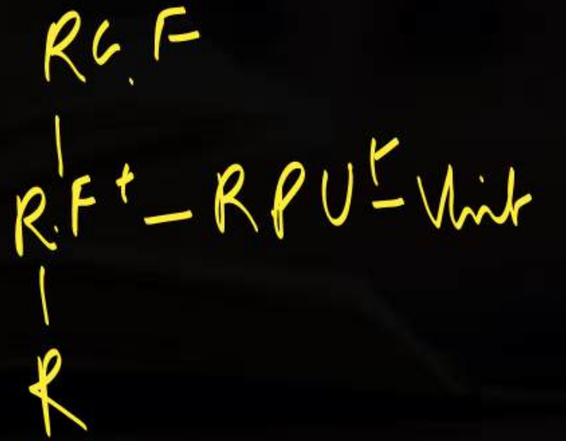
QUESTION 62

When Rani saw Vinit, she recollected that "~~He~~ Vinit is the brother of ~~my~~ Rani grandfather's son". How is Rani related to Vinit?

① R MU+ / RF+ / RPU+

- **a** Aunt
- **b** Daughter
- **c** Sister
- **d** Niece





Rani is niece of Vinit

QUESTION 62

When Rani saw Vinit, she recollected that “He is the brother of my grandfather's son". How is Rani related to Vinit?

a Aunt

b Daughter

c Sister

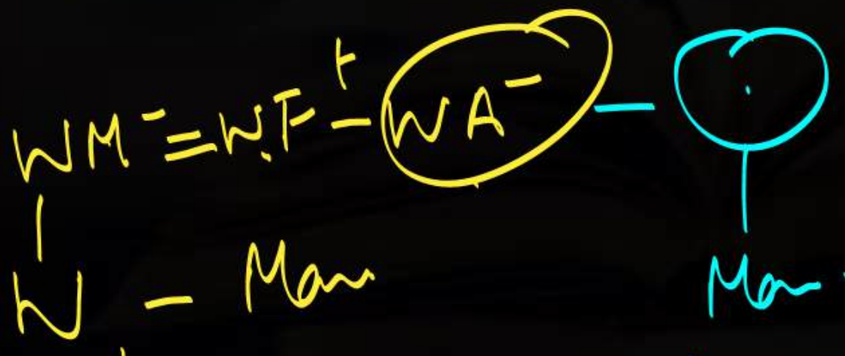
d Niece

QUESTION 68

A man said to a woman, -Your mother's husband's sister is my aunt. How is the woman related to the man?

Woman. Woman Aunt

man



a Grand daughter

b Daughter

c Sister

d Aunt

QUESTION 63

A man said to a woman, -Your mother's husband's sister is my aunt. II How is the woman related to the man?

a Grand daughter

b Daughter

c Sister

d Aunt

QUESTION 64

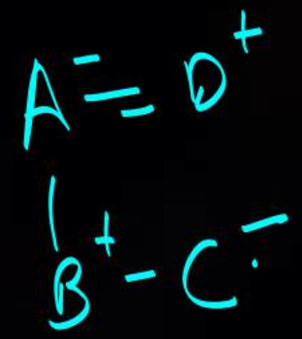
Read the following instructions:
P $ Q means P is the brother of Q;
P # Q means P is the mother of Q;
P * Q means P is the daughter of Q
If the code of family is A # B $ C * D, who is the father in them?

a D

b B

c C

d A



QUESTION 64

Read the following instructions:
P $ Q means P is the brother of Q;
P # Q means P is the mother of Q;
P * Q means P is the daughter of Q
If the code of family is A # B $ C * D, who is the father in them?

a D

b B

c C

d A

Statistical Description of Data

QUESTION 65

Which of the following statement is true

Statistique

a Statistics is derived from the French word ~~'Statistik'~~

b Statistics is derived from the Italian word 'Statista'

c Statistics is derived from the Latin word '~~Statistique~~'.

Status

d None of these

QUESTION 65

Which of the following statement is true

a Statistics is derived from the French word Statistik'

b Statistics is derived from the Italian word 'Statista'

c Statistics is derived from the Latin word 'Statistique'.

d None of these

QUESTION 66

The number of observations between 150 and 200 based on the following data is:

Value	More than 100	More than 150	More than 200	More than 250
No. of Observations	70	63	28	05

More than 150

150-200 = - More than 200 = 63 - 28 = 35

a 46

b 35

c 28

d 23

QUESTION 66

The number of observations between 150 and 200 based on the following data is:

Value	More than 100	More than 150	More than 200	More than 250
No. of Observations	70	63	28	05

a 46

b 35

c 28

d 23

QUESTION 67

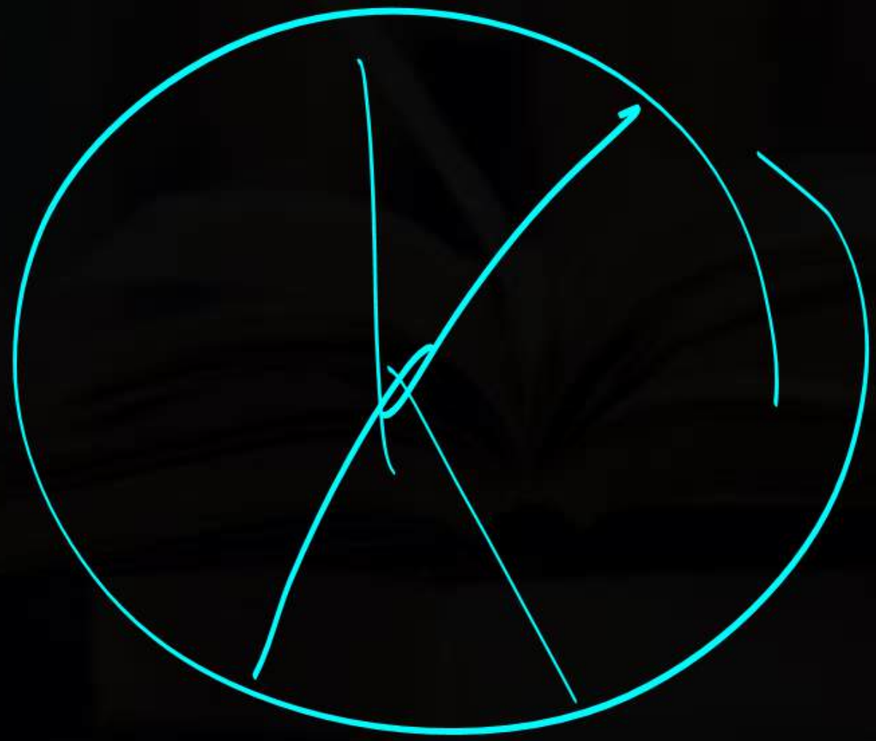
A suitable graph for representing the portioning of total into sub parts in statistics is:

a A Pictograph

b A Pie Chart

c An Ogive

d A Histogram



QUESTION 67

A suitable graph for representing the portioning of total into sub parts in statistics is:

a A Pictograph

b A Pie Chart

c An Ogive

d A Histogram

QUESTION 68

If the width of each of ten classes in a frequency distribution is 2.5 and the lower class boundary is 5.1, then the upper class boundary of the highest class is

a 30.1

b 31.1

c 30

d 27.6

$5.1 \xrightarrow{2.5 \times 10 = 25}$ H.C.B

$= 25 + 5.1 = 30.1$

QUESTION 69

If the width of each of ten classes in a frequency distribution is 2.5 and the lower class boundary is 5.1, then the upper class boundary of the highest class is

a 30.1

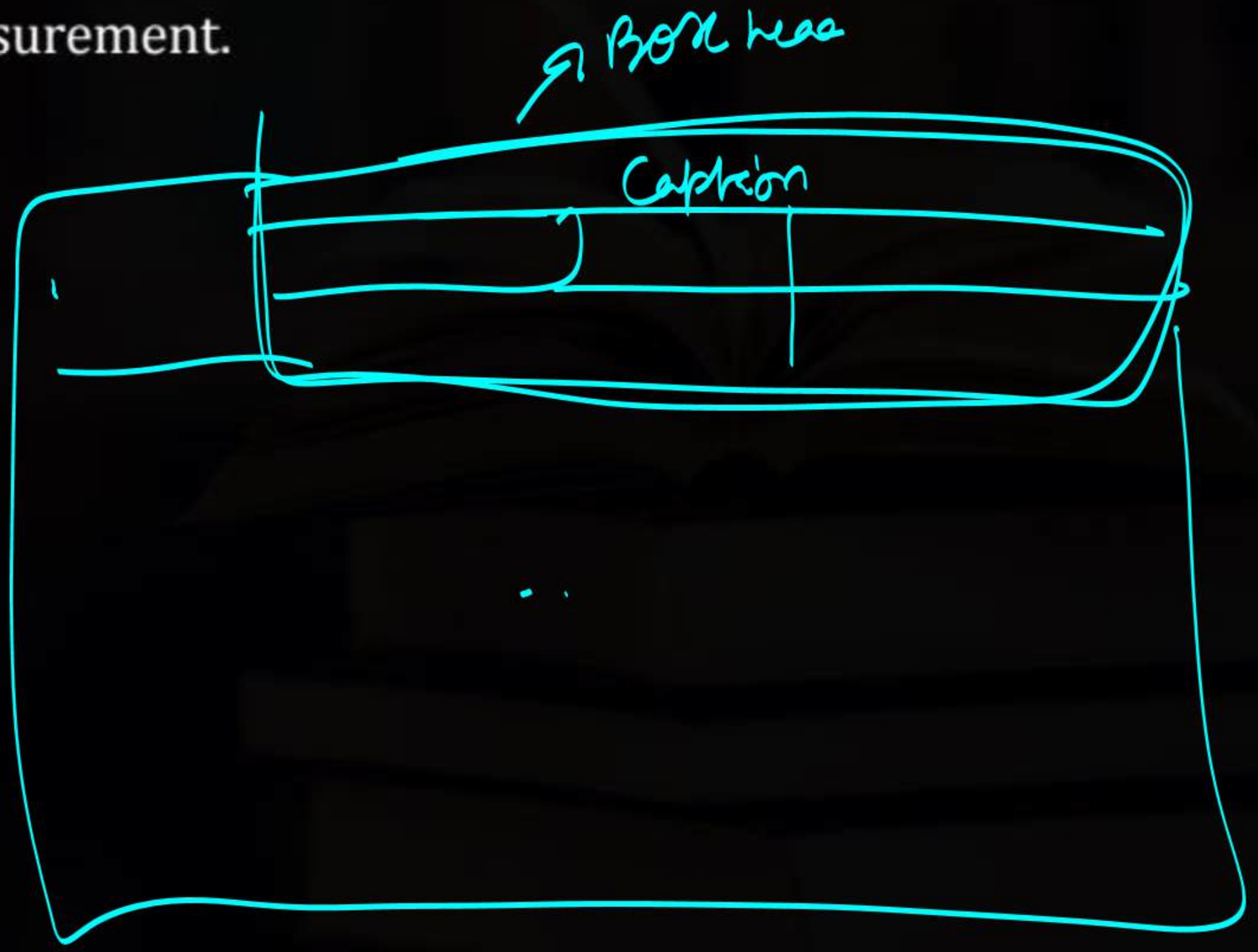
b 31.1

c 30

d 27.6

QUESTION 70

_____is the entire upper part of the table which includes columns and sub-column numbers, unit(s) measurement.



a Stub

b Box-head

c Body

d Caption

QUESTION 70

_____is the entire upper part of the table which includes columns and sub-column numbers, unit(s) measurement.

a Sub

b Box-head

c Body

d Caption

QUESTION 71

The graphical representation of Median is calculated :

a Ogive Curve

b Frequency Curve

c Line diagram

d Histogram

QUESTION 71

The graphical representation of Median is calculated :

a Ogive Curve

b Frequency Curve

c Line diagram

d Histogram

QUESTION 72

100 students are classified into male/female and graduate/non-graduate classes. This data classification

a Cardinal data

b Ordinal data

c Spatial Series data

d Temporal data

QUESTION 72

100 students are classified into male/female and graduate/non-graduate classes. This data classification

a. Cardinal data

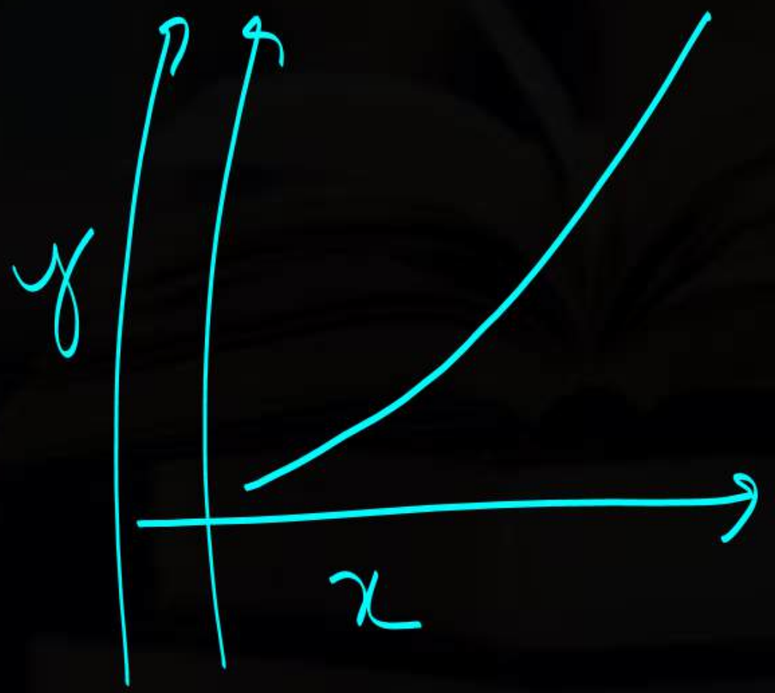
b. Ordinal data

c. Spatial Series data

d. Temporal data

QUESTION 73

In study of impact of novel Coronavirus in the world, a frequency graph is plotted for age on the x axis and fatalities on the y axis. Which frequency curve is most expected as the output?



a J shaped curve

b U shaped curve

c Bell shaped curve

d Mixed shaped curve

QUESTION 73

In study of impact of novel Coronavirus in the world, a frequency graph is plotted for age on the x axis and fatalities on the y axis. Which frequency curve is most expected as the output?

a J shaped curve

b U shaped curve

c Bell shaped curve

d Mixed shaped curve

MOC and MOD

QUESTION 74

The rate of returns from three different shares are 100%, 200% and 300% respectively. The average rate of return will be.

1 mean

a 350%

b 233.33%

c 200%

d 300%

$$\text{Mean} = \frac{100+200+300}{3} = 200$$

QUESTION 74

The rate of returns from three different shares are 100%, 200% and 300% respectively. The average rate of retuen will be.

a 350%

b 233.33%

c 200%

d 300%

QUESTION 75

The sum of the squares of deviations of a set of observations has the smallest value, when the deviations are taken from their

a A. M.

b H. M.

c G. M.

d None

$\Sigma(x-A)^2 \rightarrow$ AM

QUESTION 75

The sum of the squares of deviations of a set of observations has the smallest value, when the deviations are taken from their

a A. M.

b H. M.

c G. M.

d None

QUESTION 76

The wages of 8 workers expressed in rupees are 42, 45,49,38,56,54,55,47. Find median wage?

38, 42, 45, 47, 49, 54, 55, 56

Median $\Rightarrow \frac{47+49}{2} = 48$

a. 47

b. 48

c. 49

d. 50

QUESTION 76

The wages of 8 workers expressed in rupees are 42, 45,49,38,56,54,55,47. Find median wage?

a 47

b 48

c 49

d 50

QUESTION 77

Find Q_1 for the following observations: 7,9,5,4,10,15,14,18,6,20

4, 5, 6, 7, 9, 10, 14, 15, 18, 20

$Q_1 = 1^{st}\left(\frac{10+1}{4}\right)^{th} = 2.75^{th} = 2^{nd} + 0.75(3^{rd} - 2^{nd})$

$= 5 + 0.75(6-5)$

$= 5.75$

a. 4.75

b. 5.25

c. 5.75

d. 6.25

QUESTION 77

Find Q_1 for the following observations: 7,9,5,4,10,15,14,18,6,20

a 4.75

b 5.25

c 5.75

d 6.25

QUESTION 78

A man travels from Delhi to Agra at an average speed of 30km per hour and back at an average speed of 60 km per hour. What's the average Speed.

a. 48 Km/ hr

b. 40 km/hr ✓

c. 45 km/hr

d. 35 km/hr

$$HM \Rightarrow \frac{2}{\frac{1}{30}+\frac{1}{60}} = \frac{2}{0.05} = 40\ Km/hr$$

QUESTION 78

A man travels from Delhi to Agra at an average speed of 30km per hour and back at an average speed of 60 km per hour. What's the average Speed.

a. 48 Km/ hr

b. 40 km/hr

c. 45 km/hr

d. 35 km/hr

QUESTION 79

The mode of data is 18 and mean is 24, then median is

a 18

b 24

c 22

d 21

$$3\,\text{Med} = 2\,\text{Mean} + \text{Mode}$$

$$\text{Med} = \frac{2(24)+18}{3} = 22$$

QUESTION 79

The mode of data is 18 and mean is 24, then median is

a 18

b 24

c 22

d 21

QUESTION 80

If Arithmetic mean between two numbers is 5 and Geometric mean is 4 then what is the value of Harmonic mean?

a. 3.2

b. 3.4

c. 3.5

d. 3.6

$AM = 5$

$GM = 4$

$GM^2 = AM \cdot HM$

$HM = \frac{GM^2}{AM} = \frac{4^2}{5} = \frac{16}{5} = 3.2$

QUESTION 80

If Arithmetic mean between two numbers is 5 and Geometric mean is 4 then what is the value of Harmonic mean?

a 3.2

b 3.4

c 3.5

d 3.6

QUESTION 81

A student marks were wrongly entered as 85 instead of 45. Due to that the average marks for the whole class got increased by one-fourth. The no. of students in the class is?

a. 80

b. 160

c. 40

d. 20

$x_w = 85$

$x_y = 45$

$\bar{x}_w = \bar{x}_y + \frac{1}{4}$

$\bar{x}_y = \bar{x}_w + \frac{x_y - x_w}{n}$

$\Rightarrow \bar{x}_y = \bar{x}_y + \frac{1}{4} + \frac{45 - 85}{n}$

$\Rightarrow +\frac{1}{4} = +\frac{40}{n}$

$n = 4 \times 40 = 160$

QUESTION 81

A student marks were wrongly entered as 85 instead of 45. Due to that the average marks for the whole class got increased by one-fourth. The no. of students in the class is?

a 80

b 160

c 40

d 20

QUESTION 82

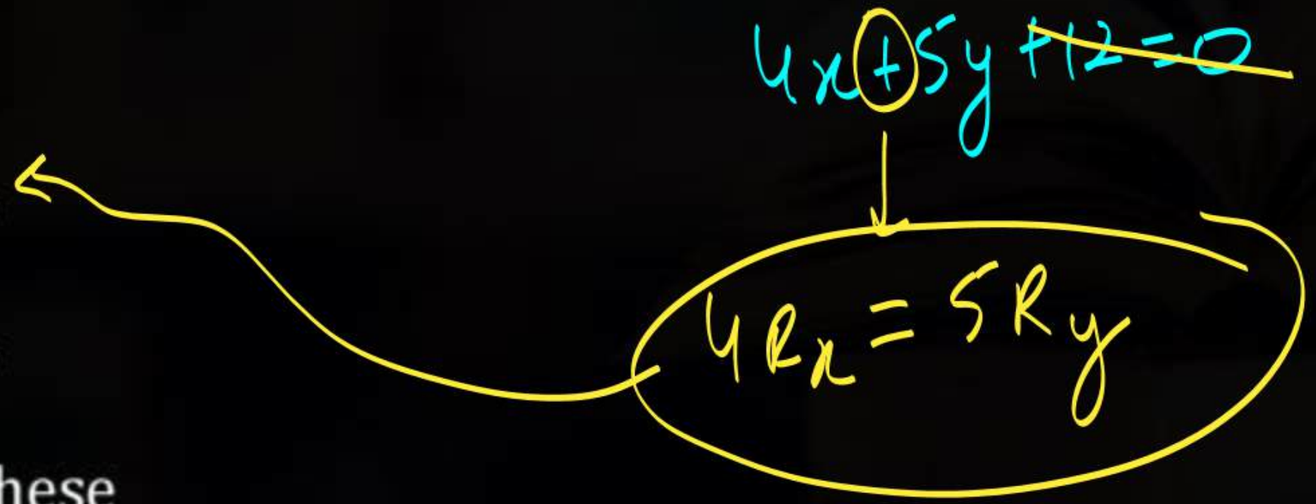
If Rx and Ry denote ranges of x and y respectively where x and y are related by 4x + 5y + 12 = 0, what would be the relation between Rx and Ry?

a $R_x = R_y$

b $4R_x = 5R_y$

c $5R_x = 4R_y$

d None of these



QUESTION 82

If Rx and Ry denote ranges of x and y respectively where x and y are related by 4x + 5y + 12 = 0, what would be the relation between Rx and Ry?

a $R_x = R_y$

b $4R_x = 5R_y$

c $5R_x = 4R_y$

d None of these

QUESTION 88

If X and Y are related as 3X - 4Y = 20 and the quartile deviation of X is 12, then the quartile deviation of Y is :

a. 14

b. 15

c. 16

d. 9

$3x - 4y = 20$

$QD_x = 12$

$3QD_x = 4QD_y$

$QD_y = \frac{3}{4} QD_x = \frac{3}{4}(12) = 9$

QUESTION 83

If X and Y are related as 3X - 4Y = 20 and the quartile deviation of X is 12, then the quartile deviation of Y is :

a 14

b 15

c 16

d 9

QUESTION 84

If variance of x is 5, then find the variance of (2 - 3x)

a. 10

b. 45

c. 5

d. -13

$y = 2 - 3x$

$SD_y = |-3| SD_x$

$(SD_y)^2 = (3\ SD_x)^2$

$SD_y^2 = 3^2\ SD_x^2$

$V_y = 9 \times V_x = 9 \times 5 = 45$

QUESTION 84

If variance of x is 5, then find the variance of (2 - 3x)

a 10

b 45

c 5

d –13

QUESTION 85

Mean and S.D. of x is 50 and 5 respectively, Find mean and S.D. of $\frac{x-50}{5}$

a ~~(1,0)~~

b (0,1)

c ~~(1,-1)~~

d (0,-1)

$y = \frac{x-50}{5}$

$\bar{y} = \frac{\bar{x}-50}{5} = \frac{50-50}{5} = 0$

$y = \frac{x}{5} - \frac{50}{5}$

$SD_y = SD_{\frac{x}{5}} = \frac{5}{5} = 1$

QUESTION 85

Mean and S.D. of x is so and 5 respectively, Find mean and S.D. of $\frac{x-50}{5}$

a (1,0)

b (0,1)

c (1.-1)

d (0,-1)

QUESTION 86

If mean and coefficient of variation of the marks of 10 students is 20 and 80 respectively. What will be the variance of them ?

a. 256

b. 16

c. 25

d. none of these

$$Cov = \frac{SDx}{\bar{x}} \times 100$$

$$80 = \frac{SDx}{20} \times 100$$

$$SDx = 16 \rightarrow Var = 16^2 = 256$$

QUESTION 86

.If mean and coefficient of variation of the marks of 10 students is 20 and 80 respectively. What will be the variance of them ?

a 256

b 16

c 25

d none of these

Index Numbers

QUESTION 87

Circular Test is satisfied by:

a. Paasche's Index Number

b. The simple geometric mean of price relatives and the weighted aggregative with fixed weights

c. Laspeyre's Index Number

d. None of these

QUESTION 87

Circular Test is satisfied by:

a. Paasche's Index Number

b. The simple geometric mean of price relatives and the weighted aggregative with fixed weights

c. Laspeyre's Index Number

d. None of these

QUESTION 88

If Fisher's index = 150 and Paasche's Index = 144, then Laspeyre's index is

- **a** 147
- **b** 156.25
- **c** 104.17
- **d** 138

$$(F)^2 = \left(\sqrt{L \times P}\right)^2$$

$$F^2 = L \times P$$

$$L = \frac{F^2}{P} = \frac{150^2}{144} = 156.25$$

QUESTION 88

If Fisher's index = 150 and Paasche's Index = 144, then Laspeyre's index is

a 147

b 156.25

c 104.17

d 138

QUESTION 89

Consumer price index is commonly known as

a Chain Based index

b Ideal index

c Wholesale price index

d Cost of living index.

QUESTION 89

Consumer price index is commonly known as

a Chain Based index

b Ideal index

c Wholesale price index

d Cost of living index.

QUESTION 90

The index number of prices at a place in 2008 is 355 with 2003 as base. This means

2003	100
2008	355

inc = 355 − 100
= 255%.

a There has been on the average a 255% increase in prices.

b There has been on the average a 355% increase in price.

c There has been on the average a 250% increase in price.

d None of these.

QUESTION 90

The index number of prices at a place in 2008 is 355 with 2003 as base. This means

a There has been on the average a 255% increase in prices.

b There has been on the average a 355% increase in price.

c There has been on the average a 250% increase in price.

d None of these.

QUESTION 91

If $\sum P_0Q_0 = 1360, \sum P_nQ_0 = 1900, \sum P_nQ_0 = 1344, \sum P_nQ_0 = 1880$, then the Laspyres Index number is

$$L = \frac{\sum P_n Q_0}{\sum P_0 Q_0} \times 100 = \frac{1900}{1360} \times 100$$

$$= 139.7$$

a 71

b 139.70

c 175

d 180

QUESTION 91

If $\sum P_0 Q_0 = 1360, \sum P_n Q_0 = 1900, \sum P_0 Q_n = 1344, \sum P_n Q_n = 1880$, then the Laspyres Index number is

a 71

b 139.70

c 175

d 180

QUESTION 92

From the following data

Group	A	B	C	D	E	F
Group Index I	120	132	98	115	108	95
Weight w	6	3	4	2	1	4

The general Index (I) is given by:

Gen Index = $\frac{\sum W_i \text{ Index}}{\sum W}$ $\frac{= 2226}{20}$

$= 111.3$

a. 123.25

b. 217.15

c. 111.30

d. None

QUESTION 92

From the following data

Group	A	B	C	D	E	F
Group Index	120	132	98	115	108	95
Weight	6	3	4	2	1	4

The general Index (I) is given by:

a 123.25

b 217.15

c 111.30

d None

QUESTION 93

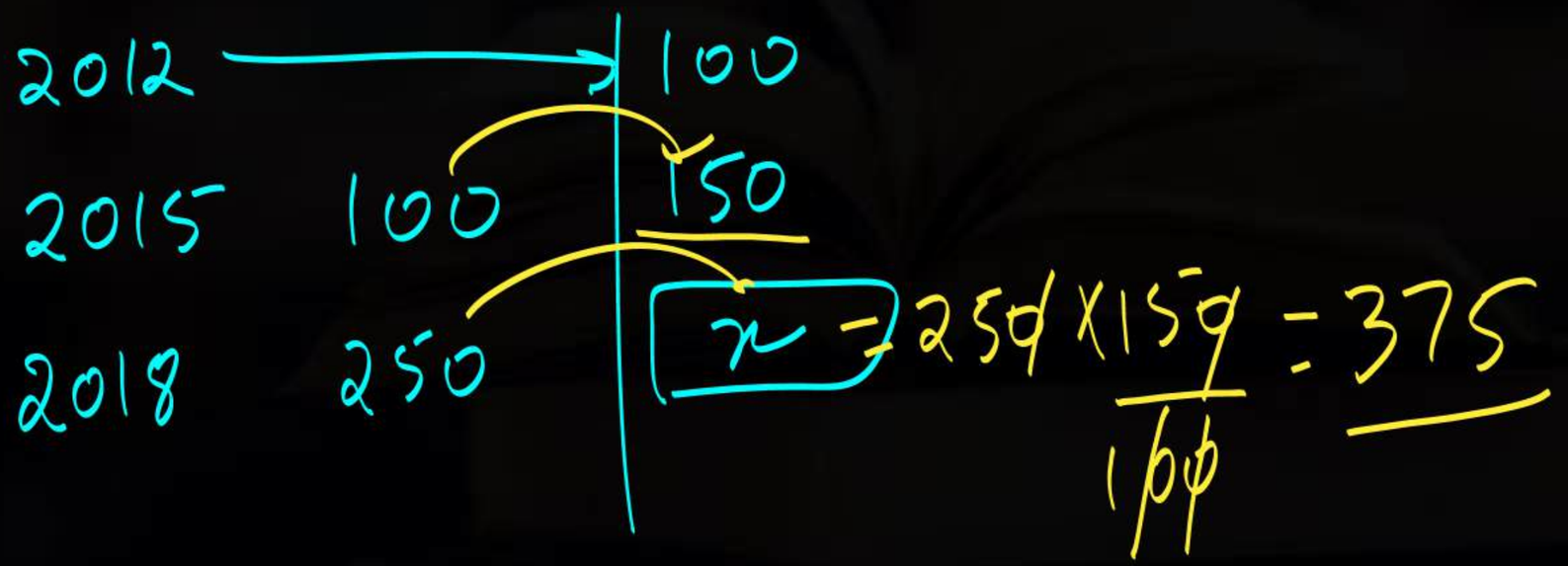
If the 2018 index with base 2015 is 250 and 2015 index with base 2012 is 150, the index 2018 on base 2012 will be:

a 800

b 375

c 600

d None



QUESTION 93

If the 2018 index with base 2015 is 250 and 2015 index with base 2012 is 150, the index 2018 on base 2012 will be:

a 800

b 375

c 600

d None

QUESTION 94

The purchasing power of money is_____.

a Not equal to the price index number

b Reciprocal of the price index number

c Equal to the price index number

d None of the above

QUESTION 94

The purchasing power of money is_____.

a Not equal to the price index number

b Reciprocal of the price index number

c Equal to the price index number

d None of the above

QUESTION 95

Fisher's ideal formula for calculating index number satisfies the

a Until Test

b Factor Reversal Test

c Both (a) and (b)

d None of these

QUESTION 95

Fisher's ideal formula for calculating index number satisfies the

a Until Test

b Factor Reversal Test

c Both (a) and (b)

d None of these

COMING SOON.!!

CA INTERMEDIATE

Equations

QUESTION 96

The cost prices of 3 pens and 4 bags is Rs. 324 and 4 pens and 3 bags is Rs. 257, then cost price of 1 bag is equal to

(x = pens, y = bags; y = 1 bag)

a. Rs. 16

b. Rs. 18

c. Rs. 50

d. Rs. 75

$4 \times 3x + 4y = 324$

$3 \times 4x + 3y = 257$

$12x + 16y = 1296$

$12x + 9y = 771$

$7y = 525$

$y = \frac{525}{7} = 75$

QUESTION 96

The cost prices of 3 pens and 4 bags is Rs. 324 and 4 pens and 3 bags is Rs. 257, then cost price of 1 bag is equal to

a Rs. 16

b Rs. 18

c Rs. 50

d Rs. 75

QUESTION 97

The sum of two numbers is 75 and their difference is 20. Find the difference of their squares.

a 1500

b 1600

c 1550

d None of these

$x + y = 75$

$x - y = 20$

$x + x + y + (-y) = 75 + 20$

$2x = 95$

$x = \frac{95}{2} = 47.5$

$y = 75 - x = 75 - 47.5 = 27.5$

$x^2 - y^2 = 47.5^2 - 27.5^2$

$= 2256.25 - 756.25$

$= 1500$

QUESTION 97

The sum of two numbers is 75 and their difference is 20. Find the difference of their squares.

a 1500

b 1600

c 1550

d None of these

QUESTION 98

If the ratio of the roots of the Equation $4x^2 - 6x + p = 0$ is 1 : 2 then the value of p is:

a. 1
b. 2
c. -2
d. -1

$\alpha : \beta = 1 : 2$

$\alpha = k$

$\beta = 2k$

$\alpha + \beta = -\frac{(-6)}{4} = 1.5$

$k + 2k = 1.5$

$3k = 1.5 \Rightarrow k = \frac{1.5}{3} = 0.5$

$\alpha\beta = \frac{p}{4}$

$\Rightarrow k \cdot 2k = \frac{p}{4}$

$\Rightarrow 2k^2 = \frac{p}{4}$

$\Rightarrow p = 4 \times 2k^2$

$= 8k^2 = 8 \times 0.5^2 = 2$

QUESTION 98

If the ratio of the roots of the Equation $4x^2 - 6x + p = 0$ is 1 : 2 then the value of p is:

a 1

b 2

c –2

d –1

QUESTION 99

The roots of the cubic equation $x^3 - 7x + 6 = 0$ are :

$1 \cdot x^2 + 0 \cdot x^2 - 7x + 6 = 0$

$ax^3 + bx^2 + cx + d = 0$

$\alpha + \beta + \gamma = -\frac{0}{1} = 0$

$\alpha + \beta + \gamma = -\frac{b}{a}$

$\alpha\beta\gamma = -\frac{d}{a}$

a 1, 2 and 3
$1 + 2 + 3 \neq 0$

b 1, –2 and 3
$1 - 2 + 3 = 2 \neq 0$

c 1, 2 and –3
$1 + 2 - 3 = 0$

d 1, –2 and –3
$1 - 2 - 3 = -4 \neq 0$

QUESTION 99

The roots of the cubic equation $x^3 - 7x + 6 = 0$ are :

a 1, 2 and 3

b 1, –2 and 3

c 1, 2 and –3

d 1, –2 and –3

QUESTION 100

If the roots of $(k-4)x^2 - 2kx + (k+5) = 0$ are coincident. Then the value of k?

$\alpha, \beta = \alpha$

a. 14

b. 20

c. 18

d. 22

$b^2 - 4ac = 0$

$\Rightarrow (-2k)^2 - 4(k-4)(k+5) = 0$

$\Rightarrow 4k^2 - 4(k^2 + k - 20) = 0$

$\Rightarrow 4k^2 - 4k^2 - 4k + 80 = 0$

$\Rightarrow 4k = 80 \Rightarrow k = \frac{80}{4} = 20$

QUESTION 100

If the roots of $(k-4)x^2 - 2kx + (k+5) = 0$ are coincident. Then the value of k?

a 14

b 20

c 18

d 22

QUESTION 101

The sum of the two numbers is 8 and the sum of their squares is 34. Taking one number as x form an equation in x and hence find the numbers. The numbers are

a (7, 10) ✗

b (4, 4)

c (3, 5)

d (2, 6)

$x + y = 8$

$x^2 + y^2 = 34$

A B C → $4^2 + 4^2 = 16 + 16 \neq 34$

C $3^2 + 5^2 = 9 + 25 = 34 = RHS$

QUESTION 101

The sum of the two numbers is 8 and the sum of their squares is 34. Taking one number as x form an equation in x and hence find the numbers. The numbers are

a (7, 10)

b (4, 4)

c (3, 5)

d (2, 6)

QUESTION 102

Solve for x, y and z

$$\frac{xy}{y-x} = 210, \quad \frac{xz}{z-x} = 140, \quad \frac{yz}{y+z} = 140$$

x y z A B C

a 105; 210; 420

A) $\frac{105 \times 210}{210-105} = \frac{105 \times 210}{105} = 210$

b 100; 205; 400

$\frac{105 \times 420}{420-105} = 140$

c 95; 215; 395;

$\frac{210 \times 420}{210+420} = 140$

d None of these

QUESTION 102

Solve for x, y and z

$$\frac{xy}{y-x} = 210, \qquad \frac{xz}{z-x} = 140, \qquad \frac{yz}{y+z} = 84 \; 140$$

a 105; 210; 420

b 100; 205; 400

c 95; 215; 395;

d None of these

Linear Inequalities

QUESTION 103

Solve for x of the inequalities $2 \leq \frac{3x-2}{5} \leq 4$ where $x \in N$

a {5, 6, 7}

b {3, 4, 5, 6}

c {4, 5, 6}

d {4, 5, 6, 7}

$\times 5 \quad \times 5 \quad \times 5$

$10 \leq 3x - 2 \leq 20$

$+2 \quad +2 \quad +2$

$\frac{12}{3} \leq \frac{3x}{3} \leq \frac{22}{3}$

$4 \leq x \leq 7.33$

$\{4, 5, 6, 7\}$

QUESTION 103

Solve for x of the inequalities $2 \leq \frac{3x-2}{5} \leq 4$ where $x \in N$

a $\{5, 6, 7\}$

b $\{3, 4, 5, 6\}$

c $\{4, 5, 6\}$

d $\{4, 5, 6, 7\}$

QUESTION 104

If $2x + 5 > 3x + 2$ and $2x - 3 \leq 4x - 5$, then x takes which of the following value?

- **a** 4
- **b** −4
- **c** 2
- **d** −2

$2x + 5 > 3x + 2$

$5 - 2 > 3x - 2x$

$3 > x$

$\Rightarrow x < 3$

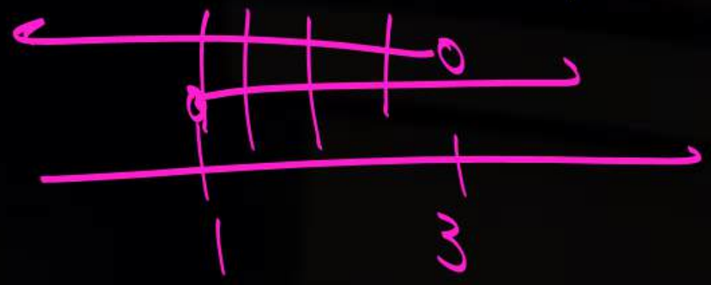
$2x - 3 \leq 4x - 5$

$2x - 4x \leq 3 - 5$

$\Rightarrow -2x \leq -2$

$\Rightarrow x \geq \frac{-2}{-2}$

$\Rightarrow x \geq 1$



$x \in [1, 3)$

QUESTION 104

If $2x + 5 > 3x + 2$ and $2x - 3 \leq 4x - 5$, then x takes which of the following value?

a 4

b –4

c 2

d –2

QUESTION 105

A small manufacturing firm produces two types of gadgets A and B, which are first processed in the foundry then sent to the machine shop for finishing. The number of man-hours of labour required in each shop for the production of each unit of A and B, and the number of man-hours the firm has available per week are as follows:

Gadget	Foundry	Machine-Shop
A	10	5
B	6	4
Firm's Capacity per week	1000	600

Let the firm manufactures x units of A and y units of B. The constraints are:

a $10x + 6y \leq 1000\ ,\ 5x + 4y \geq 600\ ,\ x \geq 0\ y \leq 0$

b $10x + 6y \leq 1000\ ,\ 5x + 4y \leq 600\ x \geq 0\ y \geq 0$

c $10x + 6y \geq 1000\ ,\ 5x + 4y \leq 600\ x \leq 0\ y \leq 0$

d $10x + 6y \leq 1000\ ,\ 5x + 4y \geq 600\ ,\ x \leq 0\ y \leq 0$

QUESTION 105

a $10x + 6y \leq 1000\ ,\ 5x + 4y \geq 600\ ,\ x \geq 0\ y \leq 0$

b $10x + 6y \leq 1000\ ,\ 5x + 4y \leq 600\ x \geq 0\ y \geq 0$

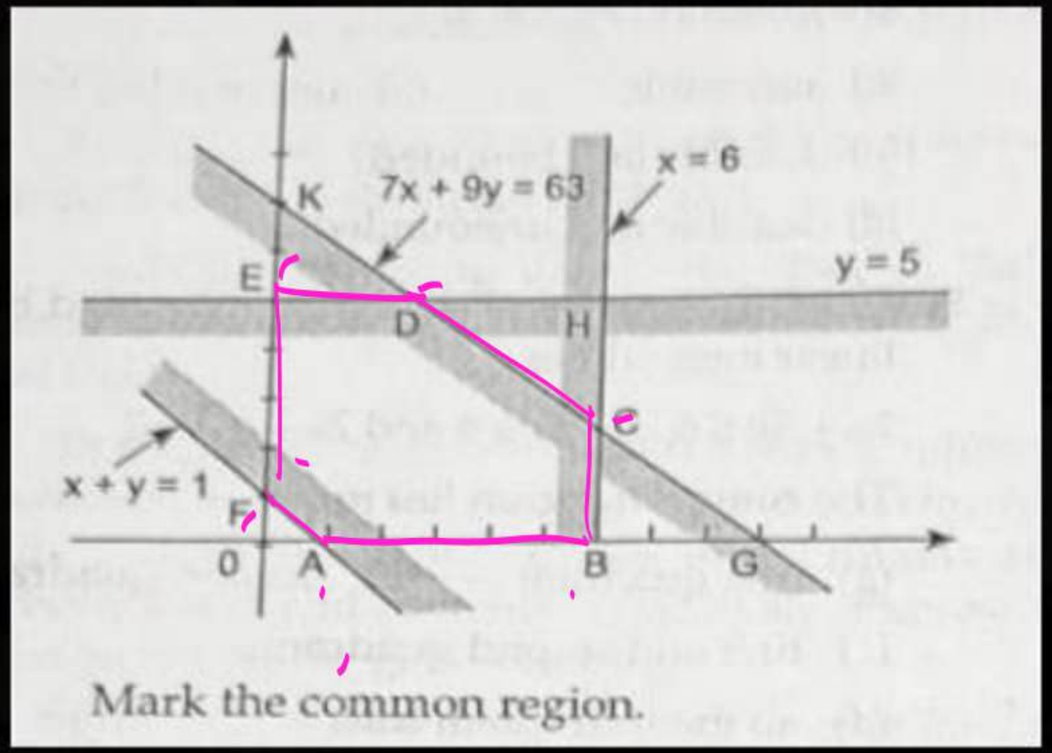
c $10x + 6y \geq 1000\ ,\ 5x + 4y \leq 600\ x \leq 0\ y \leq 0$

d $10x + 6y \leq 1000\ ,\ 5x + 4y \geq 600\ ,\ x \leq 0\ y \leq 0$

QUESTION 106

Graph of the following linear inequalities:

- ***a*** DCHAD
- ***b*** BCGB
- ***c*** ABCDEFA
- ***d*** EDKE



QUESTION 106

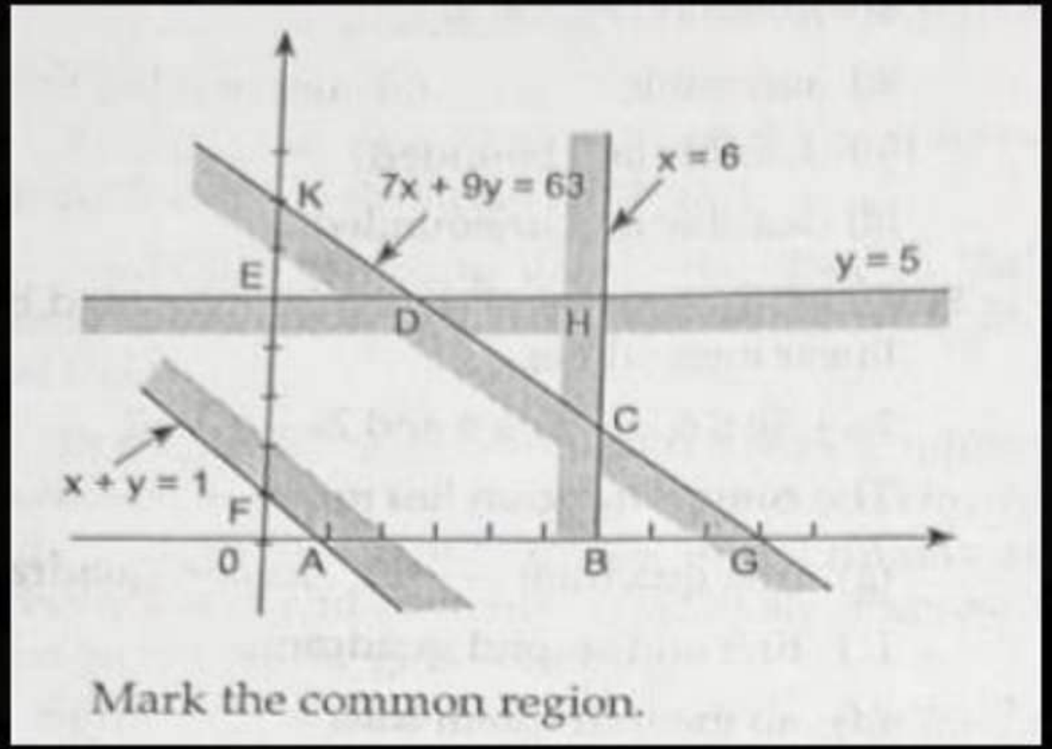
Graph of the following linear inequalities:

a DCHAD

b BCGB

c ABCDEFA

d EDKE



QUESTION 107

A manufacturer produces two items A and B. He has 10,000 to invest and a space to store 100 its m.sq. A table costs him Rs.400 and a chair Rs.100. Express this in the form of linear inequalities.

a $x + y \leq 100, 4x + y \leq 100, x \geq 0, y \geq 0$

b $x + y \leq 1000, 2x + 5y < 1000, x \geq 0, y \geq 0$

c $x + y > 100, 4x + y \geq 100, x \geq 0, y \geq 0$ (c) $x + y >$

d None of these

400 100
x y

$400x + 100y \leq 10000$

$\hookrightarrow 4x + y \leq 100$

$x + y \leq 100$

$x \geq 0, y \geq 0$

QUESTION 107

A manufacturer produces two items A and B. He has 10,000 to invest and a space to store 100 its m.sq. A table costs him Rs.400 and a chair Rs. 100. Express this in the form of linear inequalities.

a $x + y \leq 100, 4x + y \leq 100, x \geq 0, y \geq 0$

b $x + y \leq 1000, 2x + 5y < 1000, x \geq 0, y \geq 0$

c $x + y > 100, 4x + y \geq 100, x \geq 0, y \geq 0$ (c) $x + y >$

d None of these

Permutation and Combination

QUESTION 108

If $15_{C_{3r}} = 15_{C_{r+3}}$, then 'r' is equal to

$3r + r + 3 = 15$

$4r = 12$

$r = \frac{12}{4} = 3$

a 2

b 3

c 4

d 5

QUESTION 108

If $15_{C_{3r}} = 15_{C_{r+3}}$, then 'r' is equal to

a 2

b **3**

c 4

d 5

QUESTION 109

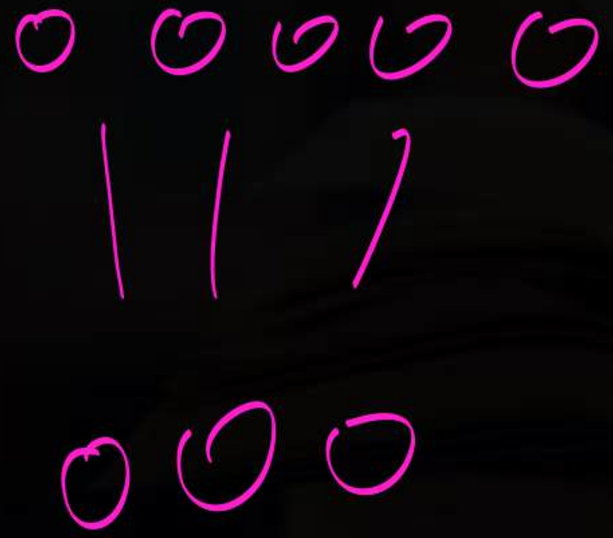
In how many ways 3 prizes out of 5 can be distributed amongst 3 brothers equally

a. 10

b. 45

c. 60

d. 120



$${}^5P_3 = 5 \times 4 \times 3 = 60$$

$${}^5C_3 \times {}^3P_3 = \frac{5 \times 4 \times 3}{3 \times 2 \times 1} \times 3 \times 2 \times 1$$

QUESTION 109

In how many ways 3 prizes out of 5 can be distributed amongst 3 brothers equally

a 10

b 45

c **60**

d 120

QUESTION 110

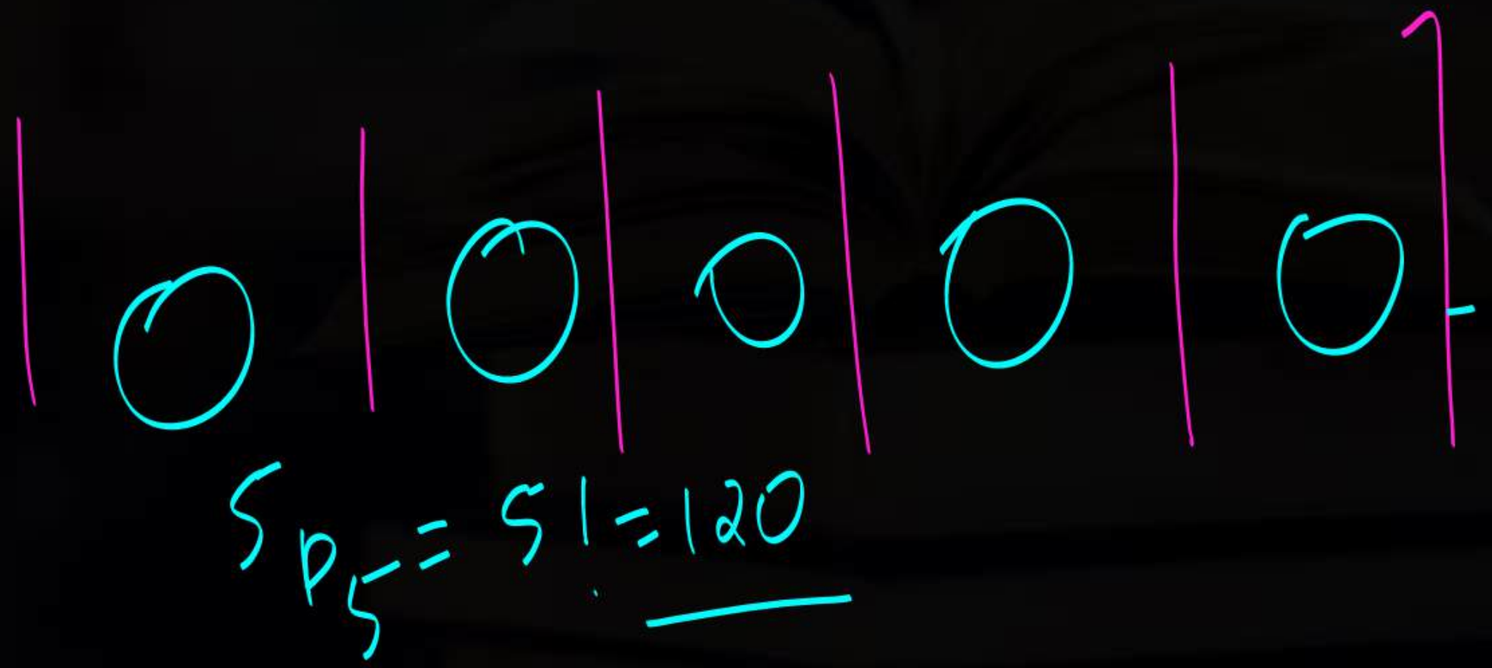
A garden having 6 tall tress in a row. In how many ways 5 children stand, one in a gap between the trees in order to pose for a photography?

a 24

b 120

c 720

d 30



QUESTION 110

A garden having 6 tall tress in a row. In how many ways 5 children stand, one in a gap between the trees in order to pose for a photography?

a 24

b **120**

c 720

d 30

QUESTION 111

The number of words from the letters of the word BHARAT, in which B and H will never come together is

a. 360

b. 240

c. 120

d. None of these

'BH' not together = Total − 'BH' Together

$= \frac{6P_6}{2!} - \frac{5P_5}{2!} \times 2!$

$\Rightarrow \frac{720}{2} - 120 = 360 - 120 = 240$

QUESTION 111

The number of words from the letters of the word BHARAT, in which B and H will never come together is

a 360

b 240

c 120

d None of these

QUESTION 112

A supreme court Bench consist of 5 judges. In how many ways, the bench can give a majority division?

- **a** 10
- **b** 5
- **c** 15
- **d** 16

$$= {}^5C_3 + {}^5C_4 + {}^5C_5$$

$$= \frac{5 \times 4 \times 3}{3 \times 2 \times 1} + 5 + 1$$

$$= 10 + 5 + 1 = 16$$

QUESTION 112

A supreme court Bench consist of 5 judges. In how many ways, the bench can give a majority division?

a 10

b 5

c 15

d **16**

QUESTION 113

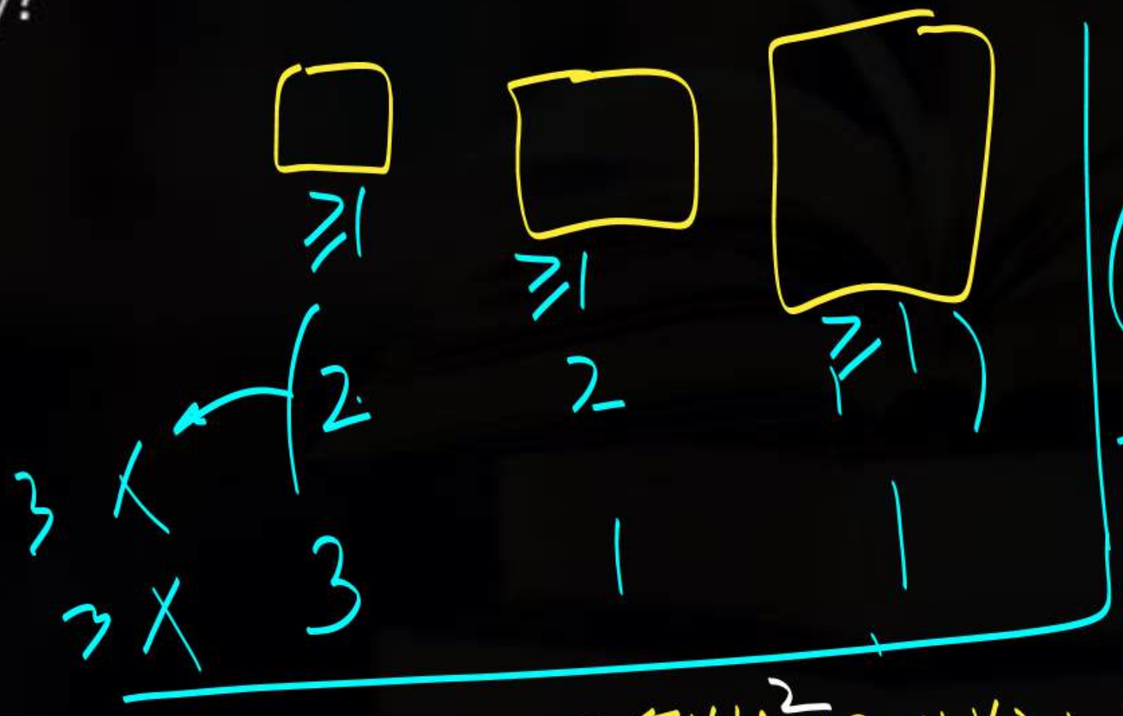
Five balls of different colours are to be placed in three boxes of different sizes. Each box can hold all the five balls. In how many different ways can we place the balls so that no box remains empty?

a 100

b 120

c 150

d None of these



Total S⁻

$(^5C_2 \times {}^3C_2 \times 1) \times 3$

$+ (^5C_3 \times {}^2C_1 \times {}^1C_1) \times 3$

$= \frac{5 \times 4^2}{2 \times 1} \times 3 \times 1 \times 3 + \left(\frac{5 \times 4}{2 \times 1} \times 2 \times 1\right) \times 3$

$= 90 + 60 = 150$

QUESTION 113

Five balls of different colours are to be placed in three boxes of different sizes. Each box can hold all the five balls. In how many different ways can we place the balls so that no box remains empty?

a 100

b 120

c **150**

d None of these

QUESTION 114

n points $\rightarrow {}^{n}C_2$ lines $-$ n sides $=$ diag.

A polygon has 44 diagonals then the number of sides are

a. 6

b. 7

c. 8

d. 11

$\downarrow$

$${}^{n}C_2 - n = 44$$

$$\Rightarrow \frac{n(n-1)}{2\times 1} - n = 44$$

$$\Rightarrow n\left(\frac{n-1}{2} - 1\right) = 44$$

$$\Rightarrow n\left(\frac{n-1-2}{2}\right) = 44$$

$$\Rightarrow n(n-3) = 88 = 11\times 8$$

$$\Rightarrow n = 11$$

ya

$n-3=8 \Rightarrow n=8+3=11$

QUESTION 114

A polygon has 44 diagonals then the number of sides are

a 6

b 7

c 8

d **11**

QUESTION 115

The value n, r if $np_r = 3024$ and $nc_r = 126$

n, r

a. 9,4

b. 10,7

c. 12,5

d. 11,6

$$nC_r = \frac{nP_r}{r!}$$

$$\Rightarrow r! = \frac{nP_r}{nC_r} = \frac{3024}{126} = 24 = 4!$$

$$\Rightarrow r = 4$$

QUESTION 115

The value n, r if $np_r = 3024$ and $nc_r = 126$

a **9, 4**

b 10,7

c 12,5

d 11,6

QUESTION 116

How many number of 3 digit can be made by using digits 3,5,6,7 and 8 . No digit being repeated.

$^5P_3 = 5 \times 4 \times 3 = 60$

a. 120

b. 60

c. 100

d. None of these

QUESTION 116

How many number of 3 digit can be made by using digits 3,5,6,7 and 8. No. digit being repeated.

a 120

b **60**

c 100

d None of these

QUESTION 117

In how many ways of the word "MATHEMATICS" be arranged so that the vowels always occurs together ?

a $11!/(2!)^3$

b $(8! \times 4!)/(2!)^3$

c $12!/(2!)^3$

d None of these

M T H M T C S

$\Rightarrow \frac{{}^{8}P_{8}}{2!2!} \times \frac{{}^{4}P_{4}}{2!}$

$\Rightarrow \frac{8!4!}{(2!)^3}$

QUESTION 117

In how many ways of the word "MATHEMATICS" be arranged so that the vowels always occurs together ?

a $11!/(2!)^3$

b $(8! \times 4!)/(2!)^3$

c $12!/(2!)^3$

d None of these

Sequence and Series

QUESTION 118

Find the numbers whose GM is 5 and AM is 7.5.

a, b

$\sqrt{a \cdot b} = 5$

$\frac{a+b}{2} = 7.5$

a 12 and 13

$\sqrt{12 \times 13} \neq 5$

b 13.09 and 1.91

$\sqrt{13.09 \times 1.91} = 5$

c 14 amd 11

$\sqrt{14 \times 11} \neq 5$

d 17 and 19

$\sqrt{17 \times 19} \neq 5$

QUESTION 118

Find the numbers whose GM is 5 and AM is 7.5.

a 12 and 13

b 13.09 and 1.91

c 14 amd 11

d 17 and 19

QUESTION 119

If the sum of n terms of an AP be $2n^2 + 5n$, then 'n th' term is :

a. $4n - 2$

b. $3n - 4$

c. $4n + 3$

d. $3n + 4$

$t_n = S_n - S_{n-1}$

$= 2n^2 + 5n - \left(2((n-1)^2) + 5(n-1)\right)$

$= 4n + 3$

QUESTION 119

If the sum of n terms of an AP be $2n^2 + 5n$, then 'n th' term is :

a $4n - 2$

b $3n - 4$

c $4n + 3$

d $3n + 4$

QUESTION 120

Find the sum of all natural numbers between 250 and 1,000 which are exactly divisible by 3 ;

a. 1, 56, 375

b. 1, 56, 357

c. 1, 65, 375

d. 1, 65, 375

$252, 255, 258, 261 \ldots 999$

$252 = 84^{th}$ term, $999 = 333^{rd}$ term

$d = 255 - 252 = 258 - 255 = 3$

$n = (333 - 84) + 1 = 250$

$S_n = \frac{n}{2}(a + l) = \frac{250}{2}(252 + 999) = 156375$

QUESTION 120

Find the sum of all natural numbers between 250 and 1,000 which are exactly divisible by 3 ;

a 1, 56, 375

b 1, 56, 357

c 1, 65, 375

d 1, 65, 375

QUESTION 121

The sum of the following series 4 + 44 + 444 + ... + to n terms is

a $\frac{4}{9}\left[\frac{10(10^n-1)}{9}-n\right]$

b $\frac{4}{9}\left[\frac{10(10^n-1)}{9}+n\right]$

c $\frac{10(10^n-1)}{9}+n$

d None of these

$4\times\frac{9}{9}(1+11+111+\text{---})$

$\frac{4}{9}(9+99+999+\text{---})$

$\frac{4}{9}\left(\frac{10(10^n-1)}{9}-n\right)$

QUESTION 121

The sum of the following series 4 + 44 + 444 + ... + to n terms is

a $\frac{4}{9}\left[\frac{10(10^n - 1)}{9} - n\right]$

b $\frac{4}{9}\left[\frac{10(10^n - 1)}{9} + n\right]$

c $\frac{10(10^n - 1)}{9} + n$

d None of these

QUESTION 122

For what values of x, the numbers $-\frac{2}{7}, x, -\frac{7}{2}$ are in G.P.?

a ± 1

b ± 3

c ± 2

d None of these

$$x^2 = -\frac{2}{7} \times -\frac{7}{2} = 1$$

$$x = \pm 1$$

QUESTION 122

For what values of x, the numbers $-\frac{2}{7}$, x, $-\frac{7}{2}$ are in G.P.?

a ± 1

b ± 3

c ± 2

d None of these

QUESTION 123

For what value of x; the sequence x + 1, 3x, 4x + 2 are in AP?

a 3

b 2

c 4

d 5

$3x - (x+1) = 4x + 2 - 3x$

$\Rightarrow 2x - 1 = x + 2$

$\Rightarrow 2x - x = 2 + 1$

$\Rightarrow x = 3$

QUESTION 123

For what value of x; the sequence x + 1, 3x, 4x + 2 are in AP?

a 3

b 2

c 4

d 5

QUESTION 124

Insert 4 A.M.'s between 3 and 18:

a ~~12, 15, 9, 6~~

b 6, 9, 12, 15

c 9, 6, 12, 15

d 15, 12, 9, 6

$3, AM_1, AM_2, AM_3, AM_4, 18$ (6, 9, 12, 15)

$AM_1 = a + d = 3 + 3 = 6$

$AM_2 = a + 2d = 3 + 2(3) = 9$

$AM_3 = a + 3d = 3 + 3(3) = 12$

$a_6 = a + (6-1)d$

$\Rightarrow 18 = 3 + 5d$

$\Rightarrow d = 3$

QUESTION 124

Insert 4 A.M.'s between 3 and 18:

a 12, 15, 9, 6

b 6, 9, 12, 15

c 9, 6, 12, 15

d 15, 12, 9, 6

QUESTION 125

The 5^{th} and 8^{th} terms of a GP series is 27 and 729. Then find the 10^{th} term

- **a** 729
- **b** 243
- **c** 81683
- **d** 6561

$a(3)^4 = 27 \Rightarrow a = \frac{27}{81} = \frac{1}{3}$

$ar^4 = 27$

$ar^7 = 729$

$\frac{ar^7}{ar^4} = \frac{729}{27} = 27$

$r^{7-4} = 27$

$r^3 = 27$

$r = 3$

$a_{10} = ar^9$

$\Rightarrow \frac{1}{3} \times 3^9 = 3^8 = 6561$

QUESTION 125

The 5^{th} and 8^{th} terms of a GP series is 27 and 729. Then find the 10^{th} term

a 729

b 243

c 81683

d 6561

QUESTION 126

In AP $T_p = q$ and $T_q = P$ then $T_{p+q} =$ _____

a 0

b $-(p+q)$

c $\frac{p+q}{2}$

d 1

$T_p = q \rightarrow a+(p-1)d = q$

$T_q = p \rightarrow a+(q-1)d = p$

$pd - d - qd + d = q - p$

$d(p-q) = -(p-q)$

$d = -1$

$a + (p-1)(-1) = q$

$a = p+q-1$

T_{p+q}

$a+(p+q-1)d$

$\Rightarrow p+q-1+(p+q-1)(-1)$

$\Rightarrow p+q-1-(p+q-1)$

$\Rightarrow 0$

QUESTION 126

In AP $T_p = q$ and $T_q = P$ then $T_{p+q} =$ _____

a 0

b $-(p + q)$

c $\frac{p + q}{2}$

d 1

QUESTION 127

The sum upto infinity of the series $S = \frac{1}{2} + \frac{1}{6} + \frac{1}{18} + \ldots\ldots$ is

$r = \frac{\frac{1}{6}}{\frac{1}{2}} = \frac{1}{6} \times \frac{2}{1} = \frac{1}{3}$

$S_\infty = \frac{a}{1-r} = \frac{\frac{1}{2}}{1-\frac{1}{3}} = \frac{\frac{1}{2}}{\frac{2}{3}} = \frac{3}{4}$

a 5/4

b 3/4

c 7/3

d None of these

QUESTION 127

The sum upto infinity of the series $S = \frac{1}{2} + \frac{1}{6} + \frac{1}{18} + \ldots\ldots\ldots$ is

a 5/4

b 3/4

c 7/3

d None of these

QUESTION 128

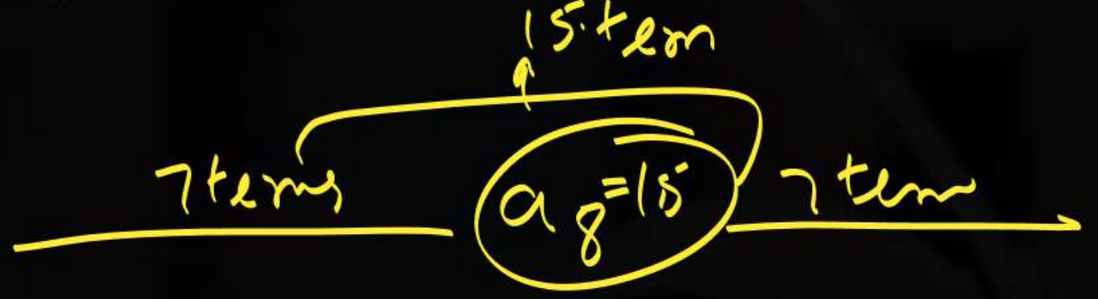
If 8^{th} terms of an AP is 15, the sum of the 15 its terms is

a 15

b 0

c 225

d 225/2



Sum = $15 \times 15 = 225$

QUESTION 128

If 8^{th} terms of an AP is 15, the sum of the 15 its terms is

a 15

b 0

c 225

d 225/2

Sets, Relations and Functions

QUESTION 129

If A = {p, q, r, s}, B = {q, s, t}, C = {m, q, n}. Find C – [A ∩ B].

a {m, n}

b {p, q}

c {r, s}

d {p, r}

$A \cap B = \{q, s\}$

$C - \{q, s\} = \{m, q, n\} - \{q, s\}$

$\Rightarrow \{m, n\}$

QUESTION 129

If A = {p, q, r, s}, B = {q, s, t}, C = {m, q, n}. Find C – [A ∩ B].

a {m, n}

b {p, q}

c {r, s}

d {p, r}

QUESTION 130

If A = {0, 1, 2, 3, 4, 5} then the number of subsets of A is

a 64

b 63

c 61

d 60

$no. = 2^6 = 64$

QUESTION 130

If A = {0, 1, 2, 3, 4, 5} then the number of subsets of A is

a 64

b 63

c 61

d 60

QUESTION 131

From a group of 200 persons, 100 are interested in music, 70 in photography and 40 in swimming, furthermore 40 are interested in both music and photography, 30 in both music and swimming, 20 in photography and swimming and 10 in all the three. How many are interested in photography but not in music and swimming?

- **a** 30
- **b** 15
- **c** 25
- **d** 20

$n(M) = 100$

$n(P) = 70$

$n(S) = 40$

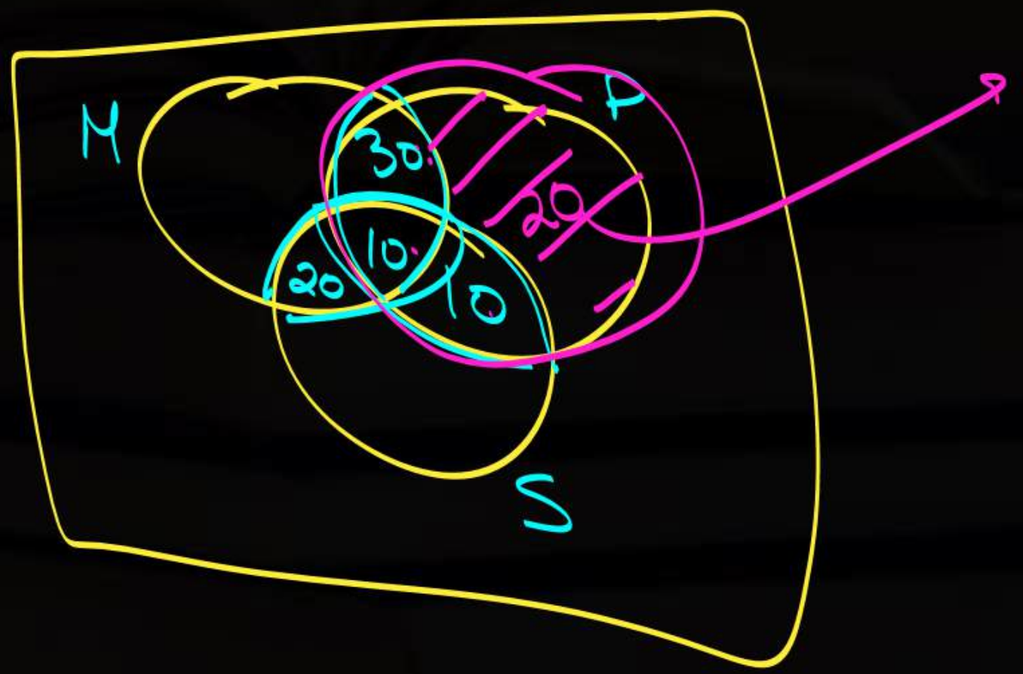
$n(M \cap P) = 40$

$n(M \cap S) = 30$

$n(P \cap S) = 20$

$n(M \cap P \cap S) = 10$

$70 - 30 - 10 - 10 = 20$



QUESTION 131

From a group of 200 persons, 100 are interested in music, 70 in photography and 40 in swimming, furthermore 40 are interested in both music and photography, 30 in both music and swimming, 20 in photography and swimming and 10 in all the three. How many are interested in photography but not in music and swimming?

a 30

b 15

c 25

d 20

QUESTION 132

Let A = {1, 2, 3}, then the relation R = {(1, 1), (2, 3), (2, 2), (3, 3), (1, 2)} is called

(3,2)

(1,1), (2,2), (3,3)

(a, b) → (b, a)

a ~~Symmetric~~

b Transitive

c Reflexive

d ~~Equivalence~~

QUESTION 132

Let A = {1, 2, 3}, then the relation R = {(1, 1), (2, 3), (2, 2), (3, 3), (1, 2)} is called

a Symmetric

b Transitive

c Reflexive

d Equivalence

QUESTION 133

If $f(x) = 2x + 2$ and $g(x) = x^2$, then the value of $fog(4)$ is

a. 18

b. 22

c. 34

d. 128

$fog = f(g(x)) = 2(g(x)) + 2$

$fog = 2x^2 + 2$

$fog(4) = 2(4)^2 + 2 = 32 + 2 = 34$

QUESTION 133

If $f(x) = 2x + 2$ and $g(x) = x^2$, then the value of $fog(4)$ is

a 18

b 22

c 34

d 128

QUESTION 134

If $f(x) = x^2 - 5$, evaluate $f(3)$, $f(5)$ and $f(1)$.

$f(3), f(5), f(1)$

a 0, 20, 4

$f(3) = 3^2 - 5 = 9 - 5 = 4$

b –4, –2, 4

c 4, 20, –4

d –2,20, 5

QUESTION 134

If $f(x) = x^2 - 5$, evaluate $f(3)$, $f(5)$ and $f(1)$.

a 0, 20, 4

b –4, –2, 4

c 4, 20, –4

d –2,20, 5

QUESTION 135

If $f(x): N \to R$ is a function defined as $f(x) = 4x + 3, \forall x \in N$, then $f^{-1}(x)$ is :

a $4 + \frac{x+3}{4}$

b $\frac{x+3}{4}$

c $\frac{x-3}{4}$

d $\frac{3x+4}{4}$

Let $f(x) = y \rightarrow f^{-1}(y) = x$

$y = 4x + 3$

$\Rightarrow y - 3 = 4x$

$\Rightarrow x = \frac{y-3}{4}$

$\Rightarrow f^{-1}(y) = x = \frac{y-3}{4}$

$\Rightarrow f^{-1}(y) = \frac{y+3}{4}$

$\Rightarrow f^{-1}(x) = \frac{x-3}{4}$

QUESTION 135

If $f(x): N \to R$ is a function defined as $f(x) = 4x + 3, \forall x \in N$, then $f^{-1}(x)$ is :

a $4 + \dfrac{x + 3}{4}$

b $\dfrac{x + 3}{4}$

c $\dfrac{x - 3}{4}$

d $\dfrac{3x + 4}{4}$

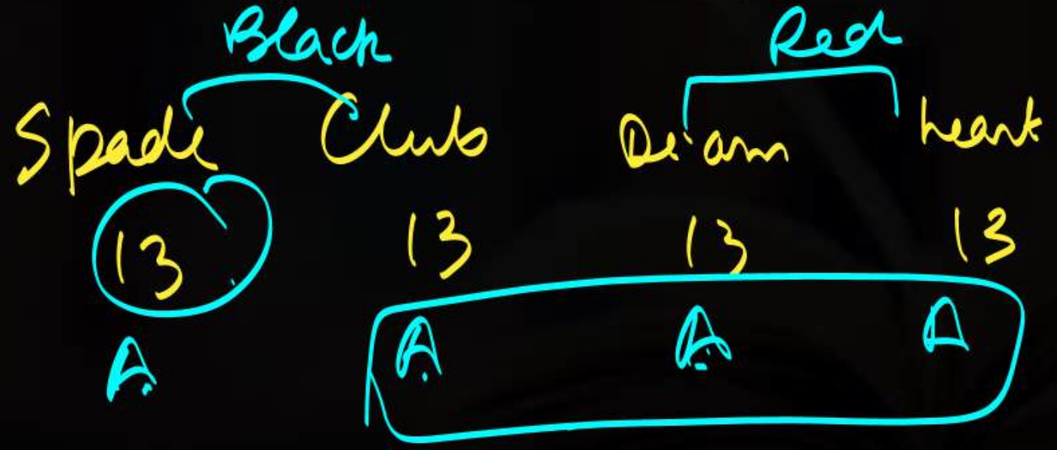
COMING SOON.!!

CA INTERMEDIATE

Probability

QUESTION 136

If a card is drawn at random from a pack of 52 cards, what is the chance of getting spade or an ace ?



$$\frac{16}{52} = \frac{4}{13}$$

a. 4/13

b. 5/13

c. 0.25

d. 0.20

QUESTION 136

If a card is drawn at random from a pack of 52 cards, what is the chance of getting spade or an ace ?

a 4/13

b 5/13

c 0.25

d 0.20

QUESTION 137

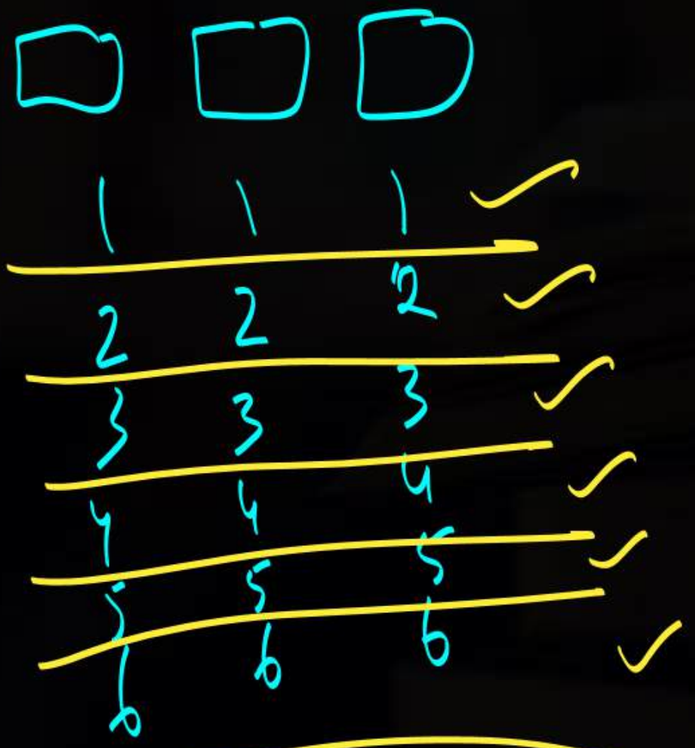
Three identical dice are rolled. The probability that the same number will appear on each of them is:

a 1/6

b 1/12

c 1/36

d 1



$$\frac{6}{216} = \frac{1}{36}$$

QUESTION 137

Three identical dice are rolled. The probability that the same number will appear on each of them is:

a 1/6

b 1/12

c 1/36

d 1

QUESTION 138

Exactly 3 girts are to be selected from 5 girls and 3 boys. The Probability of selecting 3 girls will be

$$\Rightarrow \frac{{}^5C_3}{{}^8C_3} = \frac{5 \times 4 \times 3}{3 \times 2 \times 1} \Big/ \frac{8 \times 7 \times 6}{3 \times 2 \times 1} = \frac{10}{56} = \frac{5}{28}$$

- **a** 5/28
- **b** 1/56
- **c** 15/28
- **d** None of these

QUESTION 138

Exactly 3 girts are to be selected from 5 girls and 3 boys. The Probability of selecting 3 girls will be

a 5/28

b 1/56

c 15/28

d None of these

QUESTION 139

The probability that is leap year has 53 Sunday is:

- **a** 1/7
- **b** 2/3
- **c** 2/7
- **d** 3/5

52 weeks + 2 extra

S M

M T

T W

W Th

Th Fri

Fri Sat

Sat Sun

$\frac{2}{7}$

QUESTION 139

The probability that is leap year has 53 Sunday is:

a 1/7

b 2/3

c 2/7

d 3/5

QUESTION 140

$P(A) = 2/3$; $P(B) = 3/5$; $P(A \cup B) = 5/6$. Find $P(B/A)$ $= \dfrac{P(A \cap B)}{P(A)}$

$P(A \cup B) = P(A) + P(B) - P(A \cap B)$

Find this

Solve

- **a** 11/20
- **b** 13/20
- **c** 13/18
- **d** 15/20

QUESTION 140

$P(A) = 2/3$; $P(B) = 3/5$; $P(A \cup B) = 5/6$. Find $P(B/A)$

a 11/20

b 13/20

c 13/18

d 15/20

QUESTION 141

From the following probability distribution table, find E(x).

x:	1	2	3
f(x): p_i	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{6}$

$$E(x) = \sum p_i x_i$$

$$= \frac{1}{2} \times 1 + \frac{1}{3} \times 2 + \frac{1}{6} \times 3$$

$$= 0.5 + 0.66 + 0.5 = 1.66$$

a 1

b 1.50

c 1.67

d None of these

QUESTION 141

From the following probability distribution table, find E(x).

x:	1	2	3
f(x):	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{6}$

a 1

b 1.50

c 1.67

d None of these

QUESTION 142

Ram is known to hit a target in 2 out of 3 shots whereas Shyam is known to hit the same target in 5 out of 11 shots. What is the probability that the target would be hit if they both try?

a. 9/11

b. 6/11

c. 10/33

d. 3/11

$$P(R \text{ or } S) = P(R) + P(S) - P(R \cap S)$$

$$= P(R) + P(S) - P(R) \cdot P(S)$$

$$= \frac{2}{3} + \frac{5}{11} - \frac{2}{3} \cdot \frac{5}{11}$$

$$= \frac{22 + 15 - 10}{33} = \frac{27}{33} = \frac{9}{11}$$

QUESTION 142

Ram is known to hit a target in 2 out of 3 shots whereas Shyam is known to hit the same target in 5 out of 11 shots. What is the probability that the target would be hit if they both try?

a 9/11

b 6/11

c 10/33

d 3/11

QUESTION 143

If a number is selected at random from the first 50 natural numbers, what will be the probability that the selected number is a multiple of 3 and 4?

$P(3 \& 4) = P(12) = \frac{4}{50} = \frac{2}{25}$

$1 \longrightarrow 50$

12, 24, 36, 48

a 5/50

b 2/25

c 3/50

d 4/25

QUESTION 143

If a number is selected at random from the first 50 natural numbers, what will be the probability that the selected number is a multiple of 3 and 4?

a 5/50

b 2/25

c 3/50

d 4/25

QUESTION 144

$8+5=13$

A bag contains 8 red and 5 white balls. Two successive draws of 3 balls are made without replacement. The probability that the first draw will produce 3 white ball and second 3 red balls is :

$$\frac{{}^{5}C_{3} \times {}^{8}C_{3}}{{}^{13}C_{3} \times {}^{10}C_{3}} \Rightarrow \text{Solve}$$

a. 6/255

b. 5/548

c. 7/429

d. 3/233

QUESTION 144

A bag contains 8 red and 5 white balls. Two successive draws of 3 balls are made without replacement. The probability that the first draw will produce 3 white ball and second 3 red balls is :

a 6/255

b 5/548

c 7/429

d 3/233

QUESTION 145

Probability of Ramesh & Deepak speaking truth is ¼ and 3/5. Find the probability of atmost one of them speaks truth.

$P(R) = \frac{1}{4}$ $\quad P(D) = \frac{3}{5}$

$P(R') = 1 - \frac{1}{4} = \frac{3}{4}$ $\quad P(D') = 1 - \frac{3}{5} = \frac{2}{5}$

$$P(R) \cdot P(D') + P(R') \cdot P(D) + P(R') \cdot P(D')$$

$$\Rightarrow \frac{1}{4} \times \frac{2}{5} + \frac{3}{4} \times \frac{3}{5} + \frac{3}{4} \times \frac{2}{5}$$

$$\Rightarrow \frac{2}{20} + \frac{9}{20} + \frac{6}{20} = \frac{17}{20} = 0.85$$

$$\therefore 1 - \frac{1}{4} \cdot \frac{3}{5}$$

a. 0.60

b. 0.85

c. 0.75

d. None of these

QUESTION 145

Probability of Ramesh & Deepak speaking truth is 1/4, 3/5. Find the probability of atmost one of them speaks truth.

a 0.60

b 0.85

c 0.75

d None of these

Theoretical Distribution

QUESTION 146

For binomial distribution E(x) = 2, V(x) = 4/3. Find the value of n.

a 3

b 4

c 5

d 6

$np = 2$ — (1)

$npq = \frac{4}{3}$ — (2)

$\frac{npq}{np} = \frac{4}{3} \div 2$

$q = \frac{2}{3}$

$p = 1 - \frac{2}{3} = \frac{1}{3}$.

$n\left(\frac{1}{3}\right) = 2$

$n = 3 \times 2 = 6$

QUESTION 146

For binomial distribution E(x) = 2, V(x) = 4/3. Find the value of n.

a 3

b 4

c 5

d 6

QUESTION 147

If x is binomial variate with parameter 15 and 1/3, what is mode of the distribution?

$$(n+1)p = (15+1)\frac{1}{3} = \frac{16}{3} = 5.33$$

a. 5 and 6

b. 5

c. 5.50.

d. 6

QUESTION 147

If x is binomial variate with parameter 15 and 1/3, what is mode of the distribution?

a 5 and 6

b 5

c 5.50

d 6

QUESTION 148

In a Poisson distribution if P(x = 4) = P(x = 5) then the parameter of Poisson distribution is:

a 4/5

b 5/4

c 4

d 5

$$\frac{e^{-m} m^4}{4!} = \frac{e^{-m} m^5}{5!}$$

$$\frac{5!}{4!} = \frac{m^5}{m^4}$$

$$\Rightarrow m^{5-4} = \frac{5 \times 4!}{4!}$$

$$\Rightarrow m = 5$$

QUESTION 148

In a Poisson distribution if $P(x = 4) = P(x = 5)$ then the parameter of Poisson distribution is:

a 4/5

b 5/4

c 4

d 5

QUESTION 149

In a certain manufacturing process, 5% of the tools produced turn out to be defective. Find the probability that in a sample of 40 tools, at most 2 will be defective: [Given: $e^{-2} = 0.135$]

a 0.555

b 0.932

c 0.785

d 0.675

$p = 0.05$

$n = 40$

$m = 40 \times 0.05 = 2$

$P(X \leq 2) = P(0) + P(1) + P(2)$

$= \frac{e^{-2} \cdot 2^0}{0!} + \frac{e^{-2} \cdot 2^1}{1!} + \frac{e^{-2} \cdot 2^2}{2!}$

$\Rightarrow e^{-2}(1 + 2 + 2)$

$\Rightarrow 0.135 \times 5 = 0.675$

QUESTION 149

In a certain manufacturing process, 5% of the tools produced turn out to be defective. Find the probability that in a sample of 40 tools, at most 2 will be defective: [Given: $e^{-2} = 0.135$]

a 0.555

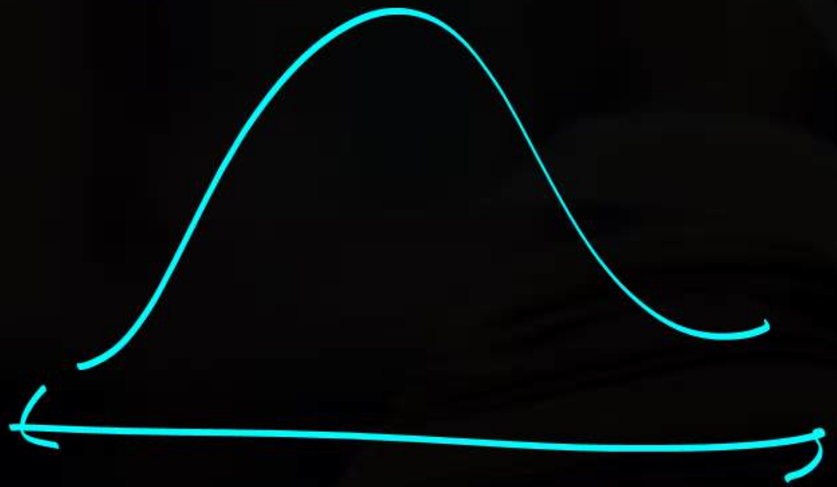
b 0.932

c 0.785

d 0.675

QUESTION 150

The total area of the normal curve is the



a one

b 50 percent

c 0.50

d any value between 0 and 1

QUESTION 150

The total area of the normal curve is the

a one

b 50 percent

c 0.50

d any value between 0 and 1

QUESTION 151

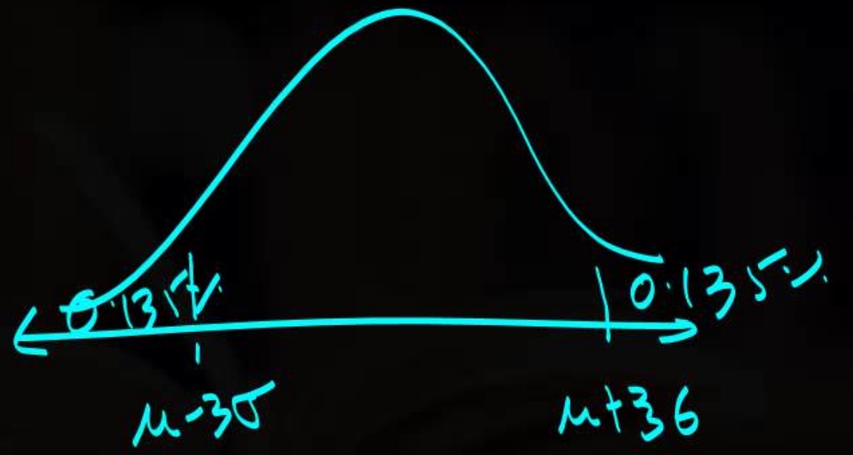
The Interval $(\mu - 3\sigma, \mu + 3\sigma)$ covers

a 95% area of normal distribution

b 96% area of normal distribution

c 99% area of normal distribution

d All but not 0.27% area of a normal distribution



$1 - (0.135 + 0.135)\%$

$= 1 - 0.27\%$

QUESTION 151

The Interval $(p - 3\sigma, \mu + 3\sigma)$ covers

a 95% area of normal distribution

b 96% area of normal distribution

c 99% area of normal distribution

d All but not 0.27% area of a normal distribution

QUESTION 152

If the Quartile Deviation of a normal distribution with mean 10 and SD 4 is

a 0.675

b 67.50

c 2.70

d 3.20

$QD = 0.675\,\sigma$

$= 0.675(4) = 2.7$

QUESTION 152

If the Quartile Deviation of a normal distribution with mean 10 and SD 4 is

a 0.675

b 67.50

c 2.70

d 3.20

QUESTION 153

If the inflexion points of a Normal Distribution are 6 and 14. Find its Standard Deviation?

a. 4

b. 6

c. 10

d. 12

$$\mu - \sigma = 6$$

$$\mu + \sigma = 14$$

$$- \quad - \quad -$$

$$\mu - \mu - \sigma - \sigma = 6 - 14$$

$$-2\sigma = -8$$

$$\sigma = \frac{-8}{-2} = 4$$

QUESTION 153

If the inflexion points of a Normal Distribution are 6 and 14. Find its Standard Deviation?

a 4

b 6

c 10

d 12

Correlation and Regression

QUESTION 154

If for two variable x and y, the covariance, variance of x and variance of y are 40, 16 and 256 respectively, what is the value of the correlation coefficient?

a. 0.01

b. 0.625

c. 0.4

d. 0.5

$$r = \frac{Cov(x,y)}{\sigma_x \cdot \sigma_y} = \frac{40}{\sqrt{16}\sqrt{256}} = \frac{40}{4 \times 16} = 0.625$$

QUESTION 154

If for two variable x and y, the covariance, variance of x and variance of y are 40, 16 and 256 respectively, what is the value of the correlation coefficient?

a 0.01

b 0.625

c 0.4

d 0.5

QUESTION 155

The coefficient of rank correlation of marks obtained by 10 students in English and Economics was found to be 0.5, it was later discovered that the difference in ranks in the two subjects obtained by one student was wrongly taken as 3 instead of 7. Find correct coefficient of rank correlation.

a. 0.514

b. 0.364

c. 0.15

d. 0.260

$$r_c = 1 - \frac{6\sum D^2}{n(n^2-1)}$$

$$0.5 = 1 - \frac{6\sum D_w^2}{10(10^2-1)}$$

$$\Rightarrow (0.5-1)\times 990 = -6\sum D_w^2$$

$$\Rightarrow \sum D_w^2 = 82.5$$

$$\sum D_c^2 = \sum D_w^2 - 3^2 + 7^2$$

$$= 82.5 - 9 + 49 = 122.5$$

$$r_c = 1 - \frac{6(122.5)}{990}$$

$$= 0.2575$$

QUESTION 155

The coefficient of rank correlation of marks obtained by 10 students in English and Economics was found to be 0.5, it was later discovered that the difference in ranks in the two subjects obtained by one student was wrongly taken as 3 instead of 7. Find correct coefficient of rank correlation.

a 0.514

b 0.364

c 0.15

d 0.260

QUESTION 156

For a (m × n) classification of bivariate data, the maximum number of conditional distributions is

a. p

b. p+q

c. pq

d. p

QUESTION 156

For a (m × n) classification of bivariate data, the maximum number of conditional distributions is

a. p

b. p+q

c. ~~pq~~

d. p

QUESTION 157

The correlation between two variables x and y is found to be 0.4. What is the correlation between 2x and (-y) ?

a. 0.4

b. -0.4

c. 0.6

d. None of these

$u = 2x$

$v = -y$

+ + − −	$r_{uv} = r_{xy}$
− + + −	$r_{uv} = -r_{xy}$

$r_{uv} = -r_{xy} = -0.4$

QUESTION 157

The correlation between two variables x and y is found to be 0.4. What is the correlation between 2x and (-y) ?

a 0.4

b -0.4

c 0.6

d None of these

QUESTION 158

The correlation coefficient between x and y is –1/2. The value of b_{xy} = –1/ 8. Find b_{yx}.

a – 2

b – 4

c 0

d 2

$$r = \sqrt{b_{yx} \cdot b_{xy}}$$

$$\left(-\frac{1}{2}\right)^2 = \left(\sqrt{b_{yx} \times -\frac{1}{8}}\right)^2$$

$$\frac{1}{4} = b_{yx} \times -\frac{1}{8}$$

$$b_{yx} = -\frac{8}{4} = -2$$

QUESTION 158

The correlation coefficient between x and y is –1/2. The value of b_{xy} = –1/ 8. Find b_{yx}.

a – 2

b – 4

c 0

d 2

QUESTION 159

Equations of two lines of regression are 4x+3y+7 = 0 and 3x+ 4y + 8 = 0, the mean of x and y are

$4\bar{x}+3\bar{y}+7=0$

$3\bar{x}+4\bar{y}+8=0$

↓ Solve sim & Tell ans ↓ in comment

a. 5/7 and 6/7

b. -4/7 and -11/7

c. 2 and 4

d. None of these

QUESTION 159

Equations of two lines of regression are $4x+3y+7 = 0$ and $3x+ 4y + 8 = 0$, the mean of x and y are

a 5/7 and 6/7

b -4/7 and -11/7

c 2 and 4

d None of these

QUESTION 160

If r = 0.6 then the coefficient of non-determination is

a 0.4

b – 0.6

c 0.36

d 0.64

$$\text{Coeff} = 1 - r^2 = 1 - (0.6)^2 = 1 - 0.36 = 0.64$$

QUESTION 160

If r = 0.6 then the coefficient of non-determination is

a 0.4

b – 0.6

c 0.36

d 0.64

QUESTION 161

If two variables are uncorrelated then regression lines are

$r = 0$

a. Parallel

b. Perpendicular

c. Coincident

d. Inclined at 45°

QUESTION 161

If two variables are uncorrelated then regression lines are

a. Parallel

b. Perpendicular

c. Coincident

d. Inclined at 45°

QUESTION 162

Find the coefficient of correlation $2x+3y=2$ and $4x+3y=4$

y on x: $3y = 2-2x$, $y = \frac{2}{3} - \frac{2x}{3}$, $b_{yx} = -\frac{2}{3}$

x on y: $4x = 4-3y$, $x = \frac{4}{4} - \frac{3}{4}y$, $b_{xy} = -\frac{3}{4}$

$r = \sqrt{b_{yx} \times b_{xy}}$

$r = \sqrt{-\frac{2}{3} \times -\frac{3}{4}} = \sqrt{\frac{1}{2}} = -.7071$

$\frac{2}{3} < \frac{4}{3}$

- **a** -0.71
- **b** 0.71
- **c** -0.5
- **d** 0.5

QUESTION 162

Find the coefficient of correlation $2x+3y= 2$ and $4x+3y= 4$

a -0.71

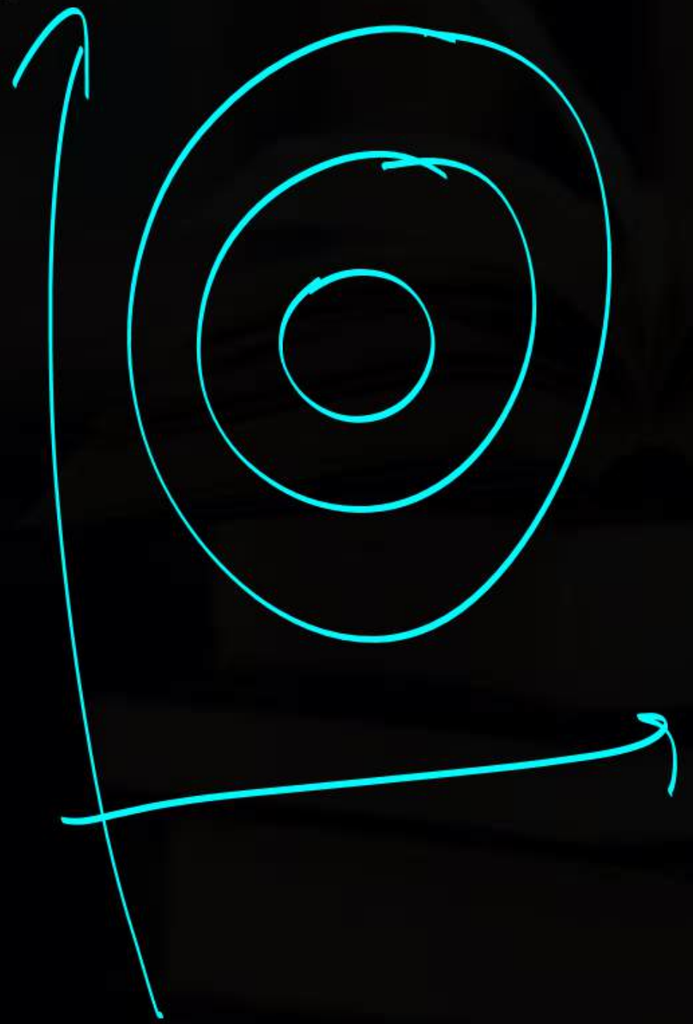
b 0.71

c -0.5

d 0.5

QUESTION 163

A scatter diagram of two variables developing a pattern of multiple circular rings represents which kind of correlation?



a Positive

b Negative

c Curvilinear

d No correlation

QUESTION 163

A scatter diagram of two variables developing a pattern of multiple circular rings represents which kind of correlation?

a Positive

b Negative

c Curvilinear

d No correlation

QUESTION 164

Correlation between unrelated variables is not because of:

a Coefficient of non-determination

b Existence of third variable related to both the variables

c Spurious correlation

d None of the above

QUESTION 164

Correlation between unrelated variables is not because of:

a Coefficient of non-determination

b Existence of third variable related to both the variables

c Spurious correlation

d None of the above

Differentiation and Integration

QUESTION 165

If $y = x(x-1)(x-2)$ *then* $\frac{dy}{dx}$ *is*

a $3x^2 - 6x + 2$

b $-6x^2 + 2$

c $3x^2 + 2$

d $3x^3 + 5$

$$y = x(x^2 - 3x + 2) = x^3 - 3x^2 + 2x$$

$$\frac{dy}{dx} = \frac{d}{dx}(x^3 - 3x^2 + 2x)$$

$$= 3x^2 - 6x + 2$$

QUESTION 165

If $y = x(x-1)(x-2)$ *then* $\frac{dy}{dx}$ *is*

a $3x^2 - 6x + 2$

b $-6x^2 + 2$

c $3x^2 + 2$

d $3x^3 + 5$

QUESTION 166

If $x = c.t$, $y = c/t$, then dy/dx is equal to :

a $1/t$

b $t.e^t$

c $-1/t^2$

d None of these

$$\frac{dy}{dx} = \frac{\frac{dy}{dt}}{\frac{dx}{dt}} = \frac{\frac{d}{dt}\left(\frac{c}{t}\right)}{\frac{d}{dt}(c \cdot t)} = \frac{c\left(-\frac{1}{t^2}\right)}{c} = -\frac{1}{t^2}$$

QUESTION 166

If $x = c.t$, $y = c/t$, then dy/dx is equal to :

a $1/t$

b $t.e^t$

c $-1/t^2$

d None of these

QUESTION 167

The cost function for the production of x units of a commodity by $C(x) = 2x^3 - 15x^2 + 36x + 15$ the cost will be minimum when 'x 'is equal to

a 3

b 2

c 1

d 4

$C(x) = 2x^3 - 15x^2 + 36x + 15$

$C'(x) = 6x^2 - 30x + 36 = 0$

$\Rightarrow x^2 - 5x + 6 = 0$

$(x-3)(x-2) = 0$

$x = 3$ or 2

$C''(x) > 0 \Rightarrow C''(x) = \frac{d}{dx}(6x^2 - 30x + 36) = 12x - 30$

$C''(3) = 12 \times 3 - 30 = 6 > 0$

$x = 3 \rightarrow$ cost is minimum

$C''(2) = 12 \times 2 - 30 = -6 < 0$

QUESTION 167

The cost function for the production of x units of a commodity by $C(x) = 2x^3 - 15x^2 + 36x + 15$ the cost will be minimum when 'x 'is equal to

a 3

b 2

c 1

d 4

QUESTION 168

Find the gradient of curve $y = 3x^2 - 5x+4$ at the point (1,2)

a 1

b 3

c 4

d 5

$$\left.\frac{d}{dx}y\right|_{(1,2)} = \frac{d}{dx}(3x^2 - 5x + 4) = (6x - 5)_{(x=1)} = 6(1) - 5 = 1$$

(x_1, y)

QUESTION 168

Find the gradient of curve $y = 3x^2 - 5x+4$ at the point (1,2)

a 1

b 3

c 4

d 5

QUESTION 169

$\int_1^4 (2x+5)\ dx$ and the value is

a 10

b 3

c 30

d None of these

$$\int (2x+5)\,dx = \frac{2x^2}{2} + 5x = \left[x^2+5x\right]_1^4$$

$$= \left[4^2+5(4)\right] - \left[1^2+5(1)\right)$$

$$= 16+20-6$$

$$= 30$$

QUESTION 169

$\int_1^4 (2x+5)\ dx$ and the value is

a 10

b 3

c 30

d None of these

QUESTION 170

The equation of the curve in the form y = f(x) if the curve passese through the point (1,0) and Find f'(x) = 2x-1 is

a $y = x^2 - x$

b $x = y^2 - y$

c $y = x^2$

d None of these

$$y = \int f'(x)\,dx = \int (2x-1)\,dx = 2\left[\frac{x^2}{2}\right] - x + C$$

$$y = x^2 - x + C \Rightarrow y = x^2 - x$$

$$0 = 1^2 - 1 + C$$

$$C = 0$$

QUESTION 170

The equation of the curve in the form y = f(x) if the curve passese through the point (1,0) and Find f'(x) = 2x-1 is

a $y = x^2 - x$

b $x = y^2 - y$

c $y = x^2$

d None of these

QUESTION 171

$\int_1^2 \frac{2x}{1+x^2} dx$ is equal to

a $\log_e(5/2)$

b $\log_e 5 - \log_e 2 + k$

c $\log_e(2/5)$

d None of these

$$\int_1^2 \frac{2x}{1+x^2} dx = \int \frac{dt}{t} = \log|t| = \left[\log|1+x^2|\right]_1^2$$

$1+x^2 = t$

$2x = \frac{dt}{dx}$

$2x\,dx = dt$

$-\log|1+2^2| - \log|1+1^2|$

$= \log 5 - \log 2$

$= \log\left|\frac{5}{2}\right|$

QUESTION 171

$\int_1^2 \frac{2x}{1+x^2} dx$ is equal to

a $\log_e(5/2)$

b $\log_e 5 - \log_e 2 + k$

c $\log_e(2/5)$

d None of these

COMING SOON.!!

CA INTERMEDIATE

Hope you Enjoyed the Session

THANK YOU