CA Foundation Course **(Mock Test Paper – Series: 1)**
DATE: 10.04.2025 **MAXIMUM MARKS: 100** **TIMING: 2 Hours**

PAPER 3 : QUANTITATIVE APTITUDE

1. Ans. b
Explanation:
$2^{x+y} = 2^2 \times 2^3 \times 2^4$
$2^{x+y} = 2^9$
$\because (x+y)=9$
$\because (x+y)^2=9^2=81$

2. Ans. a
Explanation:
Use Hit and Trial Method.

3. Ans. c
Explanation:
$x^2-\left(2-\sqrt{3}+2+\sqrt{3}\right)x+\left(2-\sqrt{3}\right)\left(2+\sqrt{3}\right)=0$
$x^2-4x+1=0$
$x^2+\alpha x+\beta=0$
α = -4 and β = 1

4. Ans. a
Explanation:
By Option

5. Ans. d
Explanation:
$ax^2+bx+c=0$
$\alpha+\beta=-\frac{b}{a}, \alpha\beta=\frac{c}{a}$
$x^2-(sum of\ roots)x+product of\ roots=0$
$x^2-\left(\frac{1}{\alpha}+\frac{1}{\beta}\right)x+\frac{1}{\alpha\beta}=0$
$x^2-\left(\frac{\alpha+\beta}{\alpha\beta}\right)x+\frac{1}{\alpha\beta}=0$
$x^2+\frac{b}{c}x+\frac{a}{c}=0$
$cx^2+bx+a=0$

6. Ans. a
Explanation:

	Grade I	Grade II	
Plant A	6	3	≤ 120
Plant B	4	10	≤ 180

$6x + 3y \leq 120$
$4x + 10y \leq 180$
$x, y \geq 0$

7. Ans. b
Explanation:
Let the sum be Rs. x

Then, $\frac{x \times 25 \times 1}{200} - \frac{x \times 10 \times 1}{100} = 1250$

x = 50,000

8. Ans. d
Explanation:
Let A's share = Rs. x and B's share = Rs. y

$$\frac{x \times 15 \times 3}{100} = 2 \times \frac{y \times 12 \times 5}{100}$$

Then,

$$\frac{x}{y} = \frac{120}{45} = \frac{8}{3}$$

9. Ans. d
Explanation:
Let the three amounts be Rs.x, Rs.y and Rs.z

Then, $\frac{x \times 10 \times 6}{100} = \frac{y \times 12 \times 10}{100} = \frac{z \times 15 \times 12}{100}$

60x = 120y = 180z
x = 2y = 3z

$X:y:z = 1:\frac{1}{2}:\frac{1}{3} = 6:3:2$

10. Ans. c
Explanation:

$$P.V. = \frac{A}{\left(1+\frac{r}{100}\right)^n} = \frac{10000}{(1+0.09)} = 6499.33$$

11. Ans. a
Explanation:
Difference between CI and SI for 2 years

$$D = P\left(\frac{R}{100}\right)^2$$

$$21 = P\left(\frac{5}{100}\right)^2$$

$$P = Rs.8400$$

12. Ans. b
Explanation:

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

$$5365.35=500\left[\frac{(1+0.14)^n-1}{0.14}\right]$$

$$2.5022=(1.14)^n$$

$$n=7\ years$$

13. Ans. c
Explanation:

P.V. of perpetuity = $\frac{R}{i-g}$

$$=\frac{150}{12\%-4\%}=\frac{150}{8\%}$$

= 1,875

14. Ans. c
Explanation:
eieei, n,g,n,r,n,g

= $\frac{7!\times 5!}{3!2!3!2!}$ = 4200

15. Ans. d
Explanation:

$${}^7C_4\times{}^3C_2+{}^7C_3\times{}^3C_3=140$$

16. Ans. a
Explanation:

S_n = $2n^2+3n$

S_1 = 5, S_2 =14, S_3 =27.....

5, (14-5), (27-14).....
5, 9, 13.....
Series is in AP

17. Ans. b
Explanation:

$$\Rightarrow ar^2=36$$

$$\Rightarrow ar^4=81$$

$$\Rightarrow r^2=\frac{81}{36}$$

$$\Rightarrow r=\frac{9}{4}=\frac{3}{2}$$

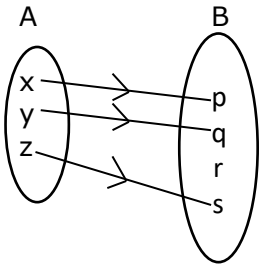
$$\Rightarrow a\times\left(\frac{3}{2}\right)^2=36$$

$$\Rightarrow a=16$$

18. Ans. b
Explanation:
$A\cap B = \{2,4,7,9\}$
$n(A\cap B) = 4$
Proper Subset = $2^n-1\Rightarrow 2^4-1=15$

19. Ans. a
Explanation:
$fog(x)=f[g(x)]$
$= 2x^2+2$
$fog(2)=2(2)^2+2=10$

20. Ans. b
Explanation:



21. Ans. b
Explanation:
$$f(x)=\frac{x^2-3x+2}{x-1}$$
$$=\frac{(x-1)(x-2)}{(x-1)}$$
$= x-2\Rightarrow 1-2=-1$

22. Ans. b
Explanation:
$$\frac{dy}{dx}=9x$$
$$\int dy=\int 9x\,dx$$

$$y=\frac{9x^2}{2}+c$$

Since it passes through the origin, c = 0; thus required equation is $9x^2=2y$

23. Ans. c
Explanation:

$$=\int\frac{dx}{x(x^3+1)}$$

$$=\int\frac{x^2dx}{x^3(x^3+1)}$$

We put $x^3=z\ and\ 3x^2dx=dz$

$$=\frac{1}{3}\int\frac{dz}{z(z+1)}$$

$$=\frac{1}{3}\int\left(\frac{1}{z}-\frac{1}{z+1}\right)dz$$

$$=\frac{1}{3}\left[\log z-\log(z+1)\right]$$

$$=\frac{1}{3}\log\left(\frac{x^3}{x^3+1}\right)$$

24. Ans. c
Explanation:
$1Rs.:50P:25P$
$4x, 5x, 6x$

$$4x+\frac{250x}{100}+\frac{150x}{100}=120$$

$$x=15$$

The number of coins of 25 paisa = 6 x 15 = 90

25. Ans. b
Explanation:
Mean Proportion

$$=\sqrt{\frac{a-b}{a+b}\times\frac{a^2b^2}{a^2-b^2}}$$

$$=\frac{ab}{a+b}$$

26. Ans. a
Explanation :
$= \log \frac{n^2(n+1)^2}{4}$
$= \log n^2 + \log (n+1)^2 - \log^4$
$= 2 \log n + 2 \log (n+1) - 2 \log^2$

27. Ans. b
Explanation:
$-2x + 3y \geq 6$ Cuts on X axis (−3, 0)
Y axis (0, 2)
and y is more than x so option (B) is Correct.

28. Ans. b
Explanation:
Let the sum be Rs. x. Then, $\left(\frac{X \times 10 \times 7}{100 \times 2}\right) - \left(\frac{X \times 12 \times 5}{100 \times 2}\right) = 40$

$\Leftrightarrow \quad \frac{7x}{20} - \frac{3x}{10} = 40 \Leftrightarrow x = (40x20) = 800.$
Hence, the sum is Rs. 800.

29. Ans. a
Explanation:
$3P = P\left(1 + \frac{r \times 8}{100}\right)$
$r = 25\%$
$5P = P\left(1 + \frac{25 \times t}{100}\right)$
$t = 16 years$

30. Ans. b
Explanation:
$A = \frac{R}{r}[(1 + r)^n - 1]$
$400000 = \frac{R}{0.10}[(1 + 0.10)^{10} - 1]$
R = Rs. 25098.16

31. Ans. b
Explanation:
$CAGR = \left(\frac{280}{100}\right)^{\frac{1}{4}} - 1$
= 29.35%

32. Ans. c
Explanation:
The sum of digit in unit place

$=(3+4+5+6)\times 3!$

= 108

33. Ans. c

Explanation:

Total line can be made by 10_{C_2}

and 7_{C_2} lines could not be drawn because points are collinear

So Remaining $\Rightarrow 10_{C_2} - 7_{C_2} + 1$

$\Rightarrow$ 25

34. Ans. c

Explanation:

37, 39, ... 119

l = a + (n–1)d

119 = 37 + (n–1)(2)

n = 42

$S_n = \frac{n}{2}(a+l) = \frac{42}{2}(37+119) = 3276$

35. Ans. c

Explanation:

$S\infty = \frac{a}{1-r}$

$a = 2, b = \frac{6}{5}$

$ab = \frac{12}{5}$

36. Ans. a

Explanation :

$\int_{-1}^{1} (x^5 - 3x^3 + 2x)\,dx = 0$

$\int_{-a}^{a} f(x)dx = 0$ if $f(x)$ is odd function

37. Ans. b

Explanation:

$CI = 60000\left(1+\frac{6}{100}\right)\left(1+\frac{8}{100}\right)\left(1+\frac{10}{100}\right) - 60{,}000 = Rs.\,15{,}556.80$

38. Ans. c

Explanation:

$A = P\left(1+\frac{r}{100}\right)^n$

$$\frac{25}{16}P = P(1+\frac{r}{100})^2$$

$$\left(\frac{5}{4}\right)^2 = (1+\frac{r}{100})^2$$

$$\frac{5}{4} = 1+\frac{r}{100}$$

r = 25%

39. Ans. c
Explanation:

$26010 = P\left(1+\frac{2}{100}\right)^2$

P = 25000

40. Ans. d
Explanation:
All Statements are true.

41. Ans. a
Explanation:
Purchasing power of money is inversely proportional to price index number.

42. Ans. a
Explanation:
Age of applicants for life insurance and the premium of insurance-correlation positive

43. Ans. b
Explanation:
Less than ogive & more than Ogive intersect at a point called MEDIAN or we can say second quartile.

44. Ans. b
Explanation:
Box-head is the entire upper part of the table which includes columns and sub-column and unit of measurement.

45. Ans. a
Explanation:
Q.D<M.D.<S.D

46. Ans. c
Explanation:

$\sum X^2 = n(\sigma^2 + \bar{X}^2)$

47. Ans. d
Explanation:
Mean < Variance

48. Ans. a
Explanation:

$5x+7y-22=0$

$6x+2y-22=0$

$r=\sqrt{\frac{10}{42}}$

$byx=\frac{-5}{7}$

$bxy=-\frac{2}{6}$ $\quad -\frac{5}{7}=-\frac{\sqrt{\frac{10}{42}}\times\sqrt{15}}{\sigma x}$ $\quad \sigma x=2.646$

49. Ans. b
Explanation:

Coefficient of range = $\frac{L-S}{L+S}$

Where $L\rightarrow$ for largest value

$S\rightarrow$ for smallest value

Coefficient of range = $\frac{40-10}{40+10}=\frac{30}{50}=\frac{3}{5}$

50. Ans. b
Explanation:

G.M. = $(2 \text{ x } 2^2 \text{x } 2^3 \text{x } 2^4 \text{x} 2^5 \text{x} 2^6)^{1/6}$

$=2^{7/2}$

51. Ans. d
Explanation:

$m=150\times\frac{2}{100}=3 \quad p(more\,than\,2)=1-\frac{e^{-3}3^0}{0!}-\frac{e^{-3}3^1}{1!}-\frac{e^{-3}3^2}{2!}$

$=1-\frac{e^{-3}3^0}{0!}-\frac{e^{-3}3^1}{1!}-\frac{e^{-3}3^2}{2!}=0.58$

52. Ans. a
Explanation:

Z A X C Y B

53. Ans. c
Explanation:

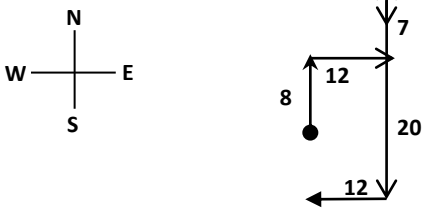
H + 2 = J
O + 2 = Q
N + 2 = P
E + 2 = G
Y + 2 = A
Now,
V - 2 = T
C - 2 = A

T - 2 = R
I - 2 = G
G - 2 = E
V - 2 = T
U - 2 = S

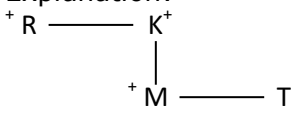
54. Ans. c
Explanation:
MINK - M = INK

55. Ans. d
Explanation:
3 X 24 5 X 22 7 X 20 10X16
C72X, E110V, G140T, J180P
Then, J180P is wrong.

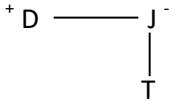
56. Ans. b
Explanation:



57. Ans. b
Explanation:



58. Ans. a
Explanation:

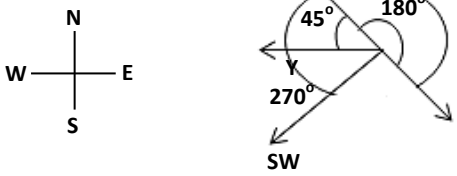


59. Ans. c
Explanation:
B is the son of C but C is not the mother of B means C is the father of B.
A is married to C means A is the mother of B.
F is the brother of B means F is the son of A and C.
D is daughter of A means D is daughter A and C. A is the mother and hence female. B is the son and hence male. C is the husband and hence male. D is the daughter and hence female. E is the brother and hence male. F is the son and hence male.
So, there are four males.

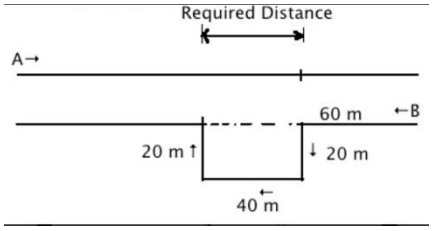
60. Ans. b
Explanation:
1, 10, 37, 118

1 x 3 + 7 = 10
10 x 3 + 7 = 37
37 x 3 + 7 = 118
118 x 3 + 7 = 361

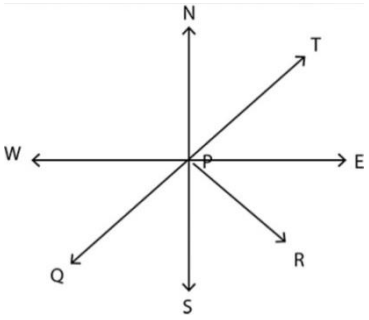
61. Ans. a
Explanation:



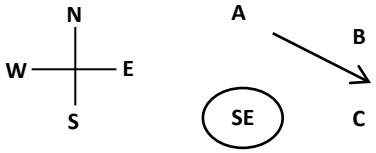
62. Ans. c
Explanation:



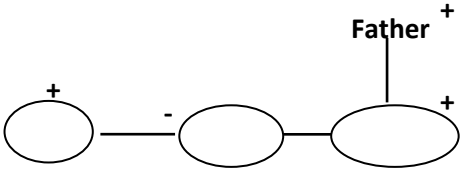
63. Ans. b
Explanation:



64. Ans. b
Explanation:



65. Ans. c
Explanation:



Answer- Sister

66. Ans. b
Explanation:
The correct pattern is x 2 - 2.
So, 48 is wrong and must be replaced by (26 x 2 - 2) i.e. 50.

67. Ans. a
Explanation:

68. Ans. c
Explanation:

$$r = \frac{25}{6 \times 5} = \frac{25}{30} = 0.833$$

69. Ans. b
Explanation:
(50 x 5850 - 8000 + 7800) ÷ 50
= 5,846

70. Ans. a
Explanation:
The Sum of difference between ranks for spearmen rank correlation coefficient is 0.

71. Ans. b
Explanation:
If rank is in reverse order then spearman rank correlation coefficient is -1.

72. Ans. a
Explanation:
Chronological classification is classification of units on the basis of time.

73. Ans. a
Explanation:

$$b_{vu} = \frac{p}{q} \times b_{yx}$$

$$= \frac{-3}{2} \times -1.2 = 1.8$$

74. Ans. c
Explanation:

$$New\,Mean = \frac{\bar{\times}}{\alpha} \qquad New\,Mean = \frac{\bar{\times}}{\alpha} + 10$$

75. Ans. c
Explanation:
Sum of deviation from mean for any set of observation is Zero.

Example:

X_i	$(X_i - \overline{X})$
10	−10
20	0
30	10
	0

$$\overline{X} = \frac{\Sigma X_i}{n}$$

$$= \frac{10+20+30}{3}$$

$$= 20$$

Therefore $\Sigma(X_i - \overline{X}) = 0$

76. Ans. c
Explanation:
Suitable form of average in this case is HM because it used for average rate.

77. Ans. b
Explanation:

X	P	PX
5	1/3	5/3
6	1/4	6/4
7	5/12	35/12

$$\frac{5}{3}+\frac{6}{4}+\frac{35}{12}$$

$$\frac{20+18+35}{12} = 6.08$$

78. Ans. c
Explanation:

$$\frac{30 \times 50 + 20 \times 60}{50}$$

79. Ans. c
Explanation:
Common Solution for the set:
In this type of linear arrangement, we find the fixed position all are facing north
Here Y is Exactly in the Middle and it is third to the left of U

1	2	3	4	5	6	7
			Y			U

W, cannot sit at any extreme end so, T is in 1st place. W sits fifth to the right of T. W is in 6th place

1	2	3	4	5	6	7
T			Y		W	U

Z is not an immediate neighbor of Y. so, only one place left for Z that is 2.

1	2	3	4	5	6	7
T	Z		Y		W	U

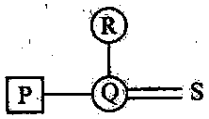
Two people sit between Z and X, X is at 5th place

1	2	3	4	5	6	7
T	Z		Y	X	W	U

The last place left for V.
From the given information we can make the following arrangement.

1	2	3	4	5	6	7
T	Z	V	Y	X	W	U

80. Ans. d
Explanation:
Mother in Law



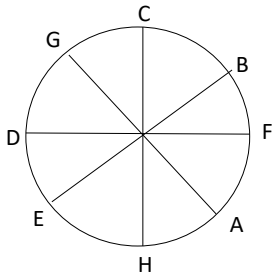
81. Ans. a
Explanation:

Largest angle = $\frac{32}{90} \times 360 = 128^0$

Smallest angle = $\frac{17}{90} \times 360 = 68^0$

Difference = 60^0

82. Ans. d
Explanation:



83. Ans. b
Explanation:

n= 32, σ=5, Σx=80

$\sigma = \sqrt{\frac{\Sigma x^2}{n} - (\bar{x})^2}$

$(5)^2 = \frac{\Sigma x^2}{32} - 6.25$

$\Sigma x^2 = 1000$

84. Ans. a
Explanation:

$(3,4)(4,3)(2,6)(6,2)$

$= \frac{4}{36}$

85. Ans. c
Explanation:

$A = \frac{4}{5} \quad A' = \frac{1}{5}$

$$B=\frac{3}{4} \qquad B'=\frac{1}{4}$$

$$AB' + BA' = \frac{7}{20}$$

86. Ans. a
Explanation:
52, 56, 68, 70, 75, 80, 82
Median = 70

X	|X-M|
52	18
56	14
68	2
70	0
75	5
80	10
82	12
	61

$$MD=\frac{61}{7}=8.71428$$

$$MD\,Coefficient=\frac{8.71428}{70}\times 100$$

87. Ans. a
Explanation:

$$\frac{13}{52}\times\frac{12}{51}=\frac{1}{17}$$

88. Ans. c
Explanation:

$$\frac{5c_2}{7c_2}=\frac{10}{21}$$

89. Ans. c
Explanation:
P=2
P=2(1-P)
P=2-2P
3P=2
P=2/3

$$q=\frac{1}{3}$$

$${}^{5}C_{3}\left(\frac{2}{3}\right)^{3}\left(\frac{1}{3}\right)^{2}$$

$$=\frac{80}{243}$$

90. Ans. b
Explanation:

$$4_{C_0}\, p^0 q^4 = \frac{16}{81}$$

$$q = \frac{2}{3} \quad p = \frac{1}{3}$$

$$4_{C_4}\left(\frac{1}{3}\right)^4\left(\frac{2}{3}\right)^0 = \frac{1}{81}$$

91. Ans. c
Explanation :
The symbol $\phi(a)$ indicates the area of the standard normal curve between $-\infty$To a.

92. Ans. c
Explanation :
Event A: Person aged 50 years will remain alive after 20 years
Event B: Person aged 60 years will remain alive after 20 years

$$\therefore P(A) = \frac{5}{9+5} = \frac{5}{14} \text{ and } P(B) = \frac{6}{8+6} = \frac{6}{14}$$

$$\therefore P(A \cup B) = \frac{5}{14} + \frac{6}{14} - \frac{5}{14} \times \frac{6}{14} = \frac{31}{49}$$

93. Ans. c
Explanation:
Standard normal distribution have inflexion points – 1 & +1.

94. Ans. b
Explanation:
Option from 12
6R 12B

$$\frac{12}{18} = \frac{6}{18}$$

95. Ans. c
Explanation:
F = $\sqrt{L \times P}$
150 = $\sqrt{140 \times P}$
P = 160.71

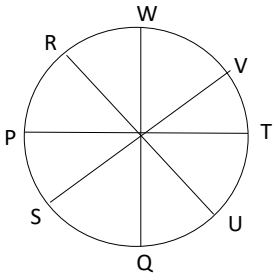
96. Ans. c
Explanation:

No. of samples without replacement = ${}^{N}C_{n} = {}^{3}C_{2} = 6$
(3,3),(3,6),(3,1),(6,6),(6,3),(6,1),(1,1),(1,3),(1,6)

97. Ans. c
Explanation:
A Statistic 'T' is said to be a consistent estimator of the population Parameter ' θ ' if $E(T) = \theta$ & $V(T) \to 0$ 0 as $n \to \infty$.

98. Ans. d
Explanation:
When every member in population has an equal chance of being selection, then that sampling is called Non-restrictive.

99. Ans. d
Explanation:



100. Ans. c
Explanation:
When the product of price index and the quantity index is equal to the corresponding value index then Factor Reversal Test.

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