SSC MOCK TEST - 6

(ANSWER WITH SOLUTION)

GENERAL INTELLIGENCE

1. (D)

2. (B) $\underset{\div 7}{21} : 3 :: \underset{\div 7}{574} : 82$

3. (D) B E L L : A F K M : : D O O R : C P N S
(-1, +1, -1, +1) (-1, +1, -1, +1)

4. (A) N L O : R P S : : V T W : X V Y
(+1, +1, +1, +1; -2, -2, -2, -2)

5. (B)

Pond	River	Sea	Ocean
3	4	2	1

6. (*) $466 - 341 = 125 \Rightarrow 125 \times 2 = 250$
Similarly,
$398 - 282 = 116 \Rightarrow 116 \times 2 = 232$

7. (D)

$(18)^2 + (15)^2$	$(17)^2 + (19)^2$	$(15)^2 + (14)^2$
$324 + 225$	$289 + 361$	$225 + 196$
$= 549$	$= 650$	$= 421$

8. (D) P a r t s : : S t r a p
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
1 2 3 4 5 5 4 3 2 1
Similarly,
W o l f : f l o w
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
1 2 3 4 4 3 2 1

9. (C) B I R D : W I R Y : : R A I N : M R Z I
(opp. opp. opp. opp.) (opp. opp. opp. opp.)

10. (C) $7 \times 7 = 49$, $7 \times 8 = 56$ and $14 \times 14 = 196$, $14 \times 15 = 210$
Similarly,
$21 \times 21 = 441$
$21 \times 22 = 462$

11. (A)

12. (C) After changing the signs according to the question, the correct equation will be -
$19 - 5 \times 4 \div 2 + 4 = 13$
$19 - 5 \times 2 + 4 = 13$
$19 - 10 + 4 = 13$
$23 - 10 = 13$
$13 = 13$ (correct)

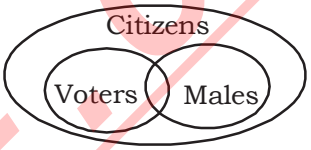
13. (C)
C A T B O A T
↕ opp. ↕ opp. ↕ opp. & ↕ opp. ↕ opp. ↕ opp. ↕
X Z G Y L Z G

Similarly,

E G G
↕ opp. ↕ opp. ↕ opp.
V T T

14. (C)

15. (B) a c a c a b a b a c a c a b a b a c a c

16. (C)


17. (C)

18. (D) According to English Alphabet The ranking value of D = 4 and the ranking value of
S H E = 32
↓ ↓ ↓
19 + 8 + 5 = 32

Similarly,
D I N E S H
↓ ↓ ↓ ↓ ↓ ↓
4 + 9 + 14 + 5 + 19 + 8 = 59

19. (B)

20. (B)
12 13
A B C D E F G H I J K L (M) N O P Q R S T U V W X Y Z
Left Right

21. (B) Total number of competitors
$= 84 + 8 - 1 = 92 - 1 = 91$
8th
84th

22. (B) According to English Alphabet the ranking value of
A L P H A B E T S
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
1 + 12 + 16 + 8 + 1 + 2 + 5 + 20 + 19 = 84

23. (B) If A = 2, R = 5, S = 7, O = 3 and E = 4 then,

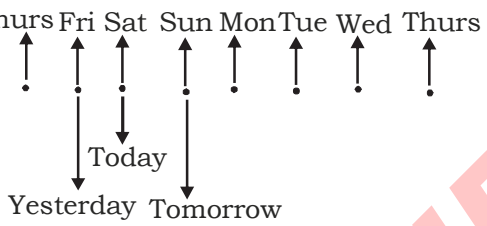
(A) S O A R
↓ ↓ ↓ ↓
7+3+2+5=17

(B) E A R S
↓ ↓ ↓ ↓
4+2+5+7=18

(C) R E A R
↓ ↓ ↓ ↓
5+4+2+5=16

(D) O A R S
↓ ↓ ↓ ↓
3+2+5+7=17

24. (B)



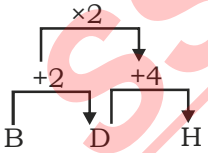
25. (B) The total days from 15 September 2000 to 15 September 2001 = 365 + 1 days
= 366 days
When we divide 366 by 7, we get 1 as remainder. Hence, 15 September 2001 will be one day after Friday i.e. Saturday

26. (C)

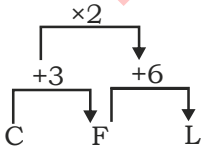
27. (C)

28. (B)

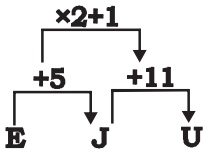
29. (C) (A)



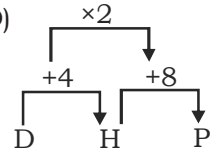
(B)



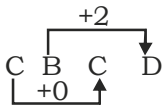
(C)



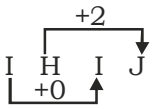
(D)



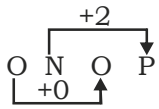
30. (D) (A)



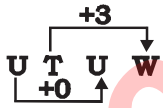
(B)



(C)



(D)



31. (D) According to English Alphabet the ranking value of

A D I P Y
↓ ↓ ↓ ↓ ↓
1 4 9 16 25 → All are square numbers

32. (A) 64 is square number of 8. Rest of the numbers are not squares.

33. (B) Except 61, all digits are divisible by 3.

34. (A)

(A) 25 50
twice

(B) 121 11
square

(C) 17 289
square

(D) 15 225
square

35. (D) (A) 9, 36, 81 → All digits are divisible by 9.

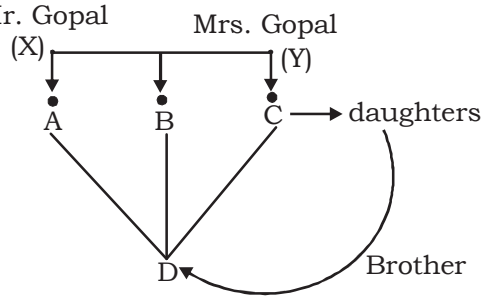
(B) 32, 64, 88 → All digits are divisible by 4.

(C) 55, 135, 165 → All digits are divisible by 5.

(D) 35, 63, 78 → These digits are not exactly divisible by any one digit.

36. (A)

37. (B) Mr. Gopal (X) Mrs. Gopal (Y)

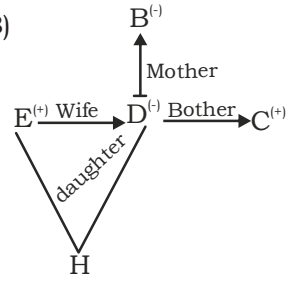


38. (D) I. A↑ B E↕ II. C↑ A D B↕

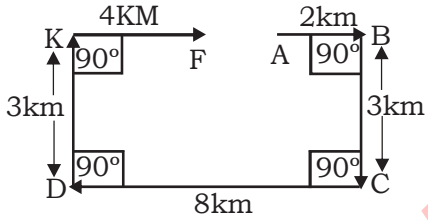
from I & II

C → 1 → Count from tallest one.
A → 2
D → 3
B → 4
E → 5

39. (B)



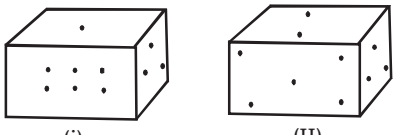
40. (A)



AF = DC – (KF + AB)
= 8 kms – (4 kms + 2 kms)
= 2 kms

41.(C) Universal rule = This rule can be applied to any dice (standard or ordinary). It is applicable when we have been given 2,3, or 4 situations of a dice. According to the rule identify any two situations in which we have only one digit common. In the given dice only one digit is common i.e. (3).

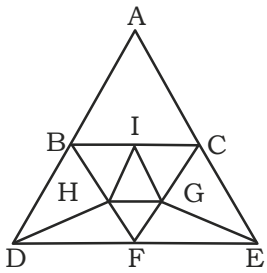
Now write the numbers as clockwise from the common number.



Here we have 3 → 6 → 1 in figure (I) .
Now look at the second figure.
Here we have 3 → 5 → 2.
Now write both of them one above the after as.

3 → 6 → 1
↕opp ↕ opp ↕opp
4 ⇔ 3 → 5 → 2

42. (D)



Number of triangles = 13
ABC, BIH BDH, DHF, FHG, HIG, IGC, GCE, FGE, BDF, FCE, BCF, and ADE

43. (B) Ex. 6 14 30
+8 +16
×2

(B) 7 12 22
+5 +10
×2

44. (B) Member Family Communily Locality
3 1 2 4

Country
5

45. (C) 1. (B) TOR**O**NTO
2. (C) TOR**P**ED
3. (E) TOR**S**EL
4. (A) TOR**T**OISE
5. (D) TOR**U**S

46. (A) Ashok is 17th from the last and Suresh is 7th rank ahead of Ashok. So, Suresh is 24th from last.
Numbers of students ahead of Suresh is rank = 29 – 24
= 15
So, Suresh is 16th from the start.

47. (B) R E T I N **U** E

48. (C) SHARK

49. (A)

50.(C) Age of Father = 45 years
Age of mother = (45 – 5) years
= 40 years
Your's age according to question

$= \left(\frac{1}{2} \times \text{Age of Mother} - 10\right)$ years

$= \left(\frac{1}{2} \times 40 - 10\right)$ years

= (20 –10) years
= 10 years

ARITHMETIC

51. (C) Let $\sqrt{12+\sqrt{12+\sqrt{12+.....}}} = x$

So $\sqrt{12+x} = x$

Squaring both the sides :-

$12 + x = x^2$

$\Rightarrow x^2 - x - 12 = 0$

$\Rightarrow x^2 - 4x + 3x - 12 = 0 \Rightarrow x(x-4) + 3(x-4) = 0$

$(x-4)(x+3) = 0$

$x = 4$ or -3

So $x = 4$

52. (C) $\left(2-\frac{1}{3}\right)\left(2-\frac{3}{5}\right)\left(2-\frac{5}{7}\right).....\left(2-\frac{997}{999}\right)$

$\Rightarrow \frac{3}{5}\times\frac{7}{5}\times\frac{9}{7}.....\frac{1001}{999}$

$\Rightarrow \frac{1001}{3}$

53. (A) $(0.0016)^{0.16} \times (0.0016)^{0.09}$

$= (0.0016)^{0.25}$

$= (0.0016)^{1/4} = 0.2$

54. (D) given

$a^2 + b^2 = 24$

& $ab = 6$

then $(a+b)^2 = 24 + 12 = 36$ and $a + b = 6$

$\Rightarrow (a^3 + b^3) = (a + b)(a^2 + b^2 - ab)$

$= (6)(24 - 6)$

$= 6 \times 18$

$a^3 + b^3 = 108$

55. (A) $x = \frac{\sqrt{2}+1}{\sqrt{2}-1}$ and $xy = 1$

$x = \frac{(\sqrt{2}+1)(\sqrt{2}+1)}{(\sqrt{2}-1)(\sqrt{2}+1)} = \frac{2+1+2\sqrt{2}}{2-1} = 3 + 2\sqrt{2}$

$x^2 = 17 + 12\sqrt{2}$

So $y^2 = 17 - 12\sqrt{2}$

Now $\frac{2x^2 + 3xy + 2y^2}{2x^2 - 3xy + 2y^2}$

$\Rightarrow \frac{2(17+12\sqrt{2}) + 3(1) + 2(17-12\sqrt{2})}{2(17+12\sqrt{2}) - 3(1) + 2(17-12\sqrt{2})}$

$= \frac{71}{65}$

56. (D) $x = \frac{1}{2+\sqrt{3}}$ & $y = \frac{1}{2-\sqrt{3}}$

So $x = \frac{2-\sqrt{3}}{4-3} = 2-\sqrt{3}$

& $y = \frac{2+\sqrt{3}}{4-3} = 2+\sqrt{3}$

$\Rightarrow \frac{1}{x+1} + \frac{1}{y+1} = \frac{1}{3-\sqrt{3}} + \frac{1}{3+\sqrt{3}}$

$\Rightarrow \frac{3+\sqrt{3}+3-\sqrt{3}}{9-3}$

So, $\frac{1}{1+x} + \frac{1}{1+y} = \frac{6}{6} = 1$

57. (B) Nearest perfect square is

$(28)^2 = 784$

difference = 784 - 777 = 7

58. (A) Nearest perfect square near to 4750 is

$\Rightarrow (68)^2 = 4624$

So, substracted Number = 4750 – 4624

= 126

59. (B) C_1 is the Centre of the balloon observer at A.

$C_1D = BC_1 = 1$ (given)

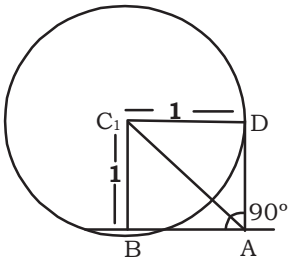
$\angle DAB = 90°$

& $\angle BAC_1 = \angle DAC_1 = 45°$

$\angle B = \angle D = 90°$ (tangents)

So In $\Delta ABC_1 \Rightarrow AC_1^2 = AB^2 + BC_1^2$

& $\sin 45° = \frac{BC_1}{AC_1} \Rightarrow \frac{1}{\sqrt{2}} = \frac{BC_1}{AC_1} \Rightarrow AC_1 = \sqrt{2}$



60. (C) Hour hand turns 30° in 1 hour

So In 3 : 45 = $3\frac{3}{4} = \frac{15}{4}$ Hours.

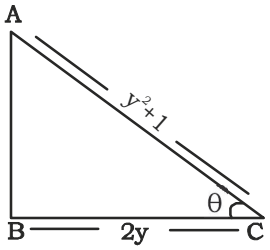
Angle turned = $\frac{30\times15}{4} = 112.5°$

61. (D) $2\,\text{cosec}\,\theta = y + \frac{1}{y}$

$$\text{cosec}\,\theta = \frac{y^2+1}{2y}$$

$$\cot\theta = \frac{y^2-1}{2y}$$

$$= \frac{1}{2}\left(y - \frac{1}{y}\right)$$



62. (A) According to the Question :-
Let the number of years = t

$$\Rightarrow \frac{3000\times12\times t}{100} = 108$$

$\Rightarrow$ t = 3 years

63. (A) Let the original price = A
According to the Question :-
10% = 1650
100% = 16500
A = ` 16500

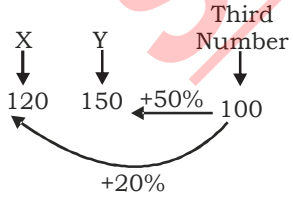
64. (C) Let the original Salary = S

$$\Rightarrow S\times\frac{75}{100}\times\frac{125}{100} = S\times\frac{3}{4}\times\frac{5}{4} = \frac{15\,S}{16}$$

= 0.9375S
So, S – 0.09375S

$$\Rightarrow \frac{0.0625\,S}{S}\times100 = 6.25\%\ \text{Less}$$

65. (D)



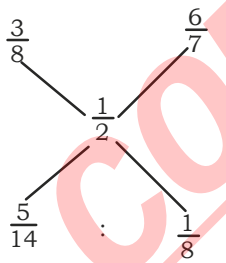
$$\Rightarrow \frac{120}{150}\times100 = \frac{4}{5}\times100 = 80\%$$

66. (D) Ratio of the fares = 4 : 1
& Ratio of the passengers = 1 : 40
So Ratio of the collected fare
= 4 × 1 : 1 × 40
= 1 : 10
$\Rightarrow$ 11 ratio = 1100
$\therefore$ 1 ratio = 100
So amount collected from first class is ` 100

67. (C) Ratio fo annual incomes.
= 4 : 3
& annual expenses = 3 : 2
Saving = Income – Expencess
So ratio of savings
= (4-3) : (3 - 2) = 1 : 1
1 Ratio = 60000 (given)
So 4 Ratio = 2,40,000 (Income of A)

68. (A) Ratio of milk & water
In glass one = 3 : 5
& In second glass = 6 : 1
Applying alligation on milk $\Rightarrow$

$\Rightarrow$



$\Rightarrow$ 40 : 14 = 20 : 7

69. (B) $\alpha+\beta = \frac{\pi}{2}$

$\Rightarrow \text{Sin}\ (\alpha+\beta) = \sin\frac{\pi}{2} \Rightarrow \sin\alpha\,.\cos\beta + \cos\alpha\,\sin\beta = 1$

$$\Rightarrow \frac{1}{3}\sqrt{1-\sin^2\beta} + \sqrt{1-\left(\frac{1}{3}\right)^2}\,\sin\beta = 1$$

$$\Rightarrow \frac{1}{3}\sqrt{1-\sin^2\beta} + \sqrt{1-\left(\frac{1}{3}\right)^2}\,\sin\beta = 1$$

$$\Rightarrow \sqrt{1-\sin^2\beta} + 2\sqrt{2}\sin\beta = 3$$

$$\Rightarrow \sqrt{1-\sin^2\beta} = 3 - 2\sqrt{2}\sin\beta$$

$$\Rightarrow 1-\sin^2\beta = 9 + 8\sin^2\beta - 12\sqrt{2}\sin\beta$$

$$\Rightarrow 9\sin^2\beta - 6\sqrt{2}\sin\beta - 6\sqrt{2}\sin\beta + 8 = 0$$

$$\Rightarrow (3\sin\beta - 2\sqrt{2})^2 = 0$$

$$\sin\beta = \frac{2\sqrt{2}}{3}$$

70.(B) According to the Question :-

$$2420 = 2000\left(1+\frac{10}{100}\right)^t$$

$$\left(1+\frac{1}{10}\right)^t = \frac{2420}{2000} \Rightarrow \left(\frac{11}{10}\right)^t = \frac{121}{100}$$

$$\left(\frac{11}{10}\right)^t = \left(\frac{11}{10}\right)^2 \Rightarrow t = 2\ \text{years}$$

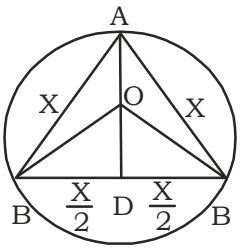
71. (D) According to the question :-

$$R=\left\{(16)^{\frac{1}{4}}-1\right\}100$$

$R = (2-1) \times 100$

$R = 100\%$

72. (B)



Let the side of equilateral angle is x

$$AD = \sqrt{AB^2+BD^2} \Rightarrow AD = \sqrt{x^2+\frac{x^2}{4}}$$

$$AD = \frac{x\times\sqrt{3}}{2}$$

radius of Circle (AO) = $AD \times \frac{2}{3}$

$$= \frac{x\sqrt{3}}{2}\times\frac{2}{\sqrt{3}} = \frac{x}{\sqrt{3}}$$

$$\therefore \text{ Diameter of circle } = \frac{2x}{\sqrt{3}}$$

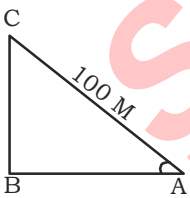
So, ratio = $x : \frac{2x}{\sqrt{3}} = \sqrt{3} : 2$

73. (C) Let 2 years ago the value was A.

So $A\times\frac{90}{100}\times\frac{90}{100}=81,00,000$

A = 1,00,00,000 = 100 lakhs

74. (A)



Let the kite flew at the point of A which is at present at point C.

$$\therefore \sin Q = \frac{BC}{AC} \Rightarrow \frac{8}{15}=\frac{BC}{100} \Rightarrow BC = \frac{800}{15}$$

$$= 53\frac{1}{3} \text{ (m) (Approx)}$$

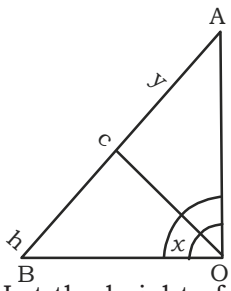
75. (A) Let the marked price = A

According to the question :-

$$A\times\frac{90}{100}\times\frac{95}{100}=171$$

$$A = \frac{171\times100\times100}{90\times95} = 200$$

76. (B)



Let the height of Chimney AC = y

In Δ AOB,

$$\tan 45^\circ = \frac{AB}{OB} \Rightarrow AB = OB = h + y$$

In Δ BOC, $\tan x = \frac{h}{h+y} \Rightarrow \cot x = \frac{h+y}{h}$

$h + y = h \cot x$, $y = h \cot x - h$

77. (D) According to the question

Let the rate = r

$p = r\% \times x$

& $y = r\% \times P$

$x \times y = P^2$

(Geometric Mean)

$\Rightarrow P^2 = xy \Rightarrow P = \sqrt{xy}$

78. (B) Two successive discounts of 10% and 20%

$$\Rightarrow 100\times\frac{90}{100}\times\frac{80}{100}=72$$

$\Rightarrow$ discount 100 - 72 = 28%

79. (A) Let the number of sides = n

then $\frac{n(n-1)}{2}-n = 27$

$\Rightarrow n^2 - 3n - 54 = 0$

$\Rightarrow (n - 9)(n + 6) = 0$

$\Rightarrow n = 9$ or $n = -6$

So $n = 9$

80. (D) Ratio of the number = 5 : 6

their LCM = 120

Let the number are 5a, 6a where 'a' is the highest common factor.

LCM of 5a & 6a $\Rightarrow$ 30a

$\Rightarrow 30a = 120$

$a = 4$ So HCF = 4

81. (A) By property

$BQ \times AQ = PQ^2$.

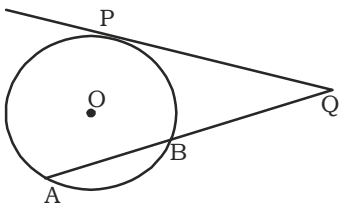
$\Rightarrow AQ \times 8 = (12)^2$

$$\Rightarrow AQ = \frac{144}{8}$$

AQ $\Rightarrow$ 18 cm.

AB = (AQ - BQ) = (18 - 8) cm

= 10cm.



82. (C) $2x-\frac{1}{3x}=4$

$\Rightarrow$ Multiply by 3 both the sides :-

$6x-\frac{1}{x}=12$

$\Rightarrow 2\left(3x-\frac{1}{2x}\right)=12 \Rightarrow 3x-\frac{1}{2x}=6$

Cube both the sides :-

$27x^3-\frac{1}{8x^3}-3\times 3x\times\frac{1}{2x}\left(3x-\frac{1}{2x}\right)=216$

$\Rightarrow 27x^3-\frac{1}{8x^3}=216+27=243$

83. (B) $\frac{1}{\sqrt{2}},\frac{1}{\sqrt[3]{4}},\frac{1}{\sqrt[4]{5}},1 \Rightarrow \frac{1}{2^{\frac{1}{2}}},\frac{1}{4^{\frac{1}{3}}},\frac{1}{5^{\frac{1}{4}}},1$

$\Rightarrow$ Powering all the terms by 12

$\Rightarrow \left(\frac{1}{2^{\frac{1}{2}}}\right)^{12},\left(\frac{1}{4^{\frac{1}{3}}}\right)^{12},\left(\frac{1}{5^{\frac{1}{4}}}\right)^{12},(1)^{12}$

$\Rightarrow \frac{1}{2^6},\frac{1}{4^4},\frac{1}{5^3},1 \Rightarrow \frac{1}{64},\frac{1}{256},\frac{1}{125},1$

So Least $=\frac{1}{\sqrt[3]{4}}$

84. (A) $x+\frac{1}{x}=2$

Here $x = 1$ Satisfies

So $\frac{2x^2+2}{3x^2+5x+3}=\frac{2+2}{3+5+3}=\frac{4}{11}$

85. (B) $\sin^6\alpha+\cos^6\alpha+3\sin^2\alpha.\cos^2\alpha$

L.H.S $\Rightarrow \left(\sin^2\alpha+\cos^2\alpha\right)^3$

R.H.S $\Rightarrow \sin^6\alpha+\cos^6\alpha+3\sin^2\alpha(\sin^2\alpha+\cos^2\alpha)$

$\Rightarrow 1 \quad (\because \sin^2\alpha+\cos^2\alpha=1)$

86. (B) cos (A + B) . cos (A - B)

cos (A + B) = cosA cosB - sinA sinB

cos (A – B) = cosA cosB + sinA sinB

$\Rightarrow$ cos (A + B). cos (A - B) = $\cos^2A.\cos^2B-\sin^2A.\sin^2B$

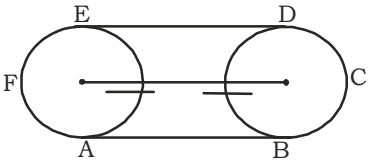
$=\cos^2A(1-\sin^2B)-(1-\cos^2A)\sin^2B$

$=\cos^2A-\cos^2A\sin^2B-\sin^2\beta+\cos^2A\sin^2B$

$=\cos^2A-\sin^2B$

So cos (A + B).cos (A - B) = $\cos^2A-\sin^2B$

87. (A) Minimum length of the belt



= AB + BCD + DE + EFA

$=a+\frac{1}{2}(2\pi r)+a+\frac{1}{2}(2\pi r)$

$=2a+2\pi r=2(a+\pi r)$

88. (C) $\therefore$ all Squares will be parallelograms.

So $P \subset Q$

and $P \subset S$ and $S \subset R$

So 1, 3 and 4 are correct.

89. (C) Total families =

15 + 10 + 40 + 5 + 20 + 30 + 15 + 10 + 40 + 15 = 200

90. (B) 40 + 15 = 55

91. (A) 15 +10 = 25

92. (D) 30 + 15 + 10 = 55

93. (B) $\frac{90}{200}\times 100=45\%$

94. (A) $A+B=\frac{1}{10}+\frac{1}{15}=\frac{3+2}{30}=\frac{5}{30}=\frac{1}{6}=6$ Hours.

95. (A) by formula :-

$a^2+b^2+c^2=(a+b+c)^2-2(ab+bc+ca)$

$=(13)^2-2\times 50$

= 169 - 100

= 69

So $(a+b+c)(a^2+b^2+c^2)=13\times 69=897$

96. (D) $\frac{7,77,77,777}{77}$

$\Rightarrow$ 1010101

97. (A) Let he ate x grapes on the first day then

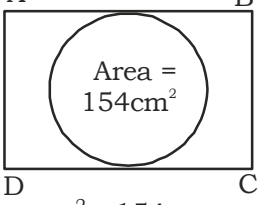
x + x + 6 + x + 12 + x + 18 + x + 24 = 100

5x + 60 = 100

5x = 40

(x = 8)

98. (C)



$\Rightarrow \pi r^2 = 154$

$\Rightarrow r^2 = \frac{154 \times 7}{22}$

$r = 7$

So side of the square = 7 + 7 = 14cm

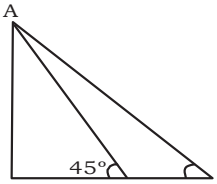
Area of the square = $14 \times 14 = 196cm^2$

99. (D) $P_\varepsilon : Q_\varepsilon : 3 : 4$

So the number of days to be taken by them to complete the work will be = $\frac{1}{3} : \frac{1}{4}$

$P_d : Q_d = 4 : 3$

100. (D)



Let AB is a pole, the height of which is 'h' meter

If BC = lenght of shadow = x

then,

from Δ ABC

$\tan 45^\circ = \frac{h}{x} \rightarrow h = x$.....(1)

from Δ ABD, $\tan 30^\circ = \frac{AB}{BD} \Rightarrow \frac{1}{\sqrt{3}}$

$= \frac{h}{x+20} \Rightarrow \frac{1}{\sqrt{3}} = \frac{h}{h+20} \Rightarrow \sqrt{3}h = h + 20$

$\Rightarrow (\sqrt{3}-1)h = 20 \Rightarrow h = \frac{20}{\sqrt{3}-1}$

$= \frac{20}{\sqrt{3}-1} \times \frac{\sqrt{3}+1}{\sqrt{3}+1} = \frac{20(\sqrt{3}+1)}{2}$

$= 10(\sqrt{3}+1)$ meter

164. (A) 'Call in' means to make a short visit

196. (C) 'broke' in place of 'has broken'

197. (A) 'for' in place of 'since'

198. (C) 'instead of wasting' in place of 'instead of having wasted'

199. (B) 'boys' in place of 'boy'

200. (C) 'at' in place of 'in'