

SSC CHSL GRAND TEST : 171201 - HINTS AND SOLUTIONS

ANSWER KEY

| | | | | | | | | | |
|----|-----|----|-----|----|-----|----|-----|-----|-----|
| 1 | (4) | 21 | (1) | 41 | (3) | 61 | (1) | 81 | (1) |
| 2 | (3) | 22 | (3) | 42 | (1) | 62 | (1) | 82 | (1) |
| 3 | (3) | 23 | (3) | 43 | (2) | 63 | (3) | 83 | (3) |
| 4 | (1) | 24 | (2) | 44 | (3) | 64 | (2) | 84 | (1) |
| 5 | (2) | 25 | (1) | 45 | (1) | 65 | (4) | 85 | (2) |
| 6 | (3) | 26 | (3) | 46 | (2) | 66 | (1) | 86 | (4) |
| 7 | (2) | 27 | (1) | 47 | (4) | 67 | (3) | 87 | (2) |
| 8 | (1) | 28 | (1) | 48 | (2) | 68 | (1) | 88 | (3) |
| 9 | (2) | 29 | (1) | 49 | (2) | 69 | (3) | 89 | (1) |
| 10 | (1) | 30 | (2) | 50 | (2) | 70 | (4) | 90 | (3) |
| 11 | (2) | 31 | (4) | 51 | (3) | 71 | (1) | 91 | (1) |
| 12 | (3) | 32 | (2) | 52 | (2) | 72 | (4) | 92 | (1) |
| 13 | (3) | 33 | (1) | 53 | (2) | 73 | (2) | 93 | (1) |
| 14 | (3) | 34 | (1) | 54 | (3) | 74 | (3) | 94 | (3) |
| 15 | (4) | 35 | (1) | 55 | (3) | 75 | (1) | 95 | (3) |
| 16 | (3) | 36 | (4) | 56 | (1) | 76 | (3) | 96 | (4) |
| 17 | (4) | 37 | (1) | 57 | (1) | 77 | (2) | 97 | (1) |
| 18 | (4) | 38 | (2) | 58 | (2) | 78 | (2) | 98 | (1) |
| 19 | (1) | 39 | (1) | 59 | (1) | 79 | (1) | 99 | (3) |
| 20 | (2) | 40 | (3) | 60 | (4) | 80 | (1) | 100 | (2) |

1. (4) Except tiger, all others are region specific creatures.

2. (3) $\boxed{c} ab / \boxed{a} b \boxed{c} / bc \boxed{a} / ca \boxed{b}$

3. (3) $A \xrightarrow{+2} C \xrightarrow{+2} E$
 $B \xrightarrow{+2} D \xrightarrow{+2} F$
 $G \xrightarrow{+2} I \xrightarrow{+2} K$
 $H \xrightarrow{+2} J \xrightarrow{+2} L$

4. (1) $2 + 5 = 7$
 $7 + 10 = 17$
 $17 + 15 = 32$
 $32 + 20 = 52$
 $52 + 25 = 77$
 $77 + 30 = \boxed{107}$

5. (2) $30 \xrightarrow{-2} 28 \xrightarrow{-5} 23 \xrightarrow{-2} 21 \xrightarrow{-5} 16$

6. (3) Suppose the number of Rabbits = x
 Number of pigeons = y

According to question

$$x + y = 200 \quad \dots(i)$$

$$\text{And, } 4x + 2y = 580 \quad \dots(ii)$$

From equations (i) and (ii),

$$x = 90$$

$$\therefore y = 200 - 90 = 110.$$

7. (2) D E V E L O P M E N T

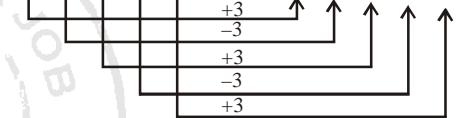
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 4 5 8 5 3 1 0 6 5 7 2

Therefore,

E N V E L O P E

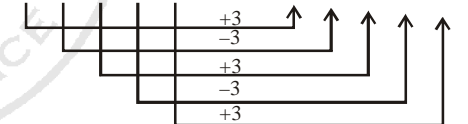
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 5 7 8 5 3 1 0 5

8. (1) M A R C H → P X U Z K



Similarly,

A P R I L → D M U F O



9. (2) $A \Rightarrow +$ $B \Rightarrow -$ $C \Rightarrow \times$

(10 C4) A (4C4) B6 = ?

$$\Rightarrow ? = (10 \times 4) + (4 \times 4) - 6$$

$$\Rightarrow ? = 40 + 16 - 6 = \boxed{50}$$

10. (1) Subtract the first number from the second number to get the third number in each row.

First Row, $30 - 9 = 21$

Second Row, $? - 6 = 14$

$$\Rightarrow ? = 14 + 6 = \boxed{20}$$

Third Row, $40 - 12 = 28$.

11. (2) The sum of the upper right number and the lower left number is equal to the lower right number while their product is gives the upper left number.

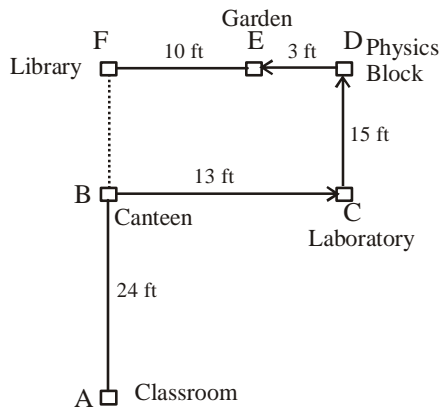
First arrangement

$$7 + 4 = 11 \text{ and } 7 * 4 = 28$$

Second arrangement, $5 + 5 = 10$ and $5 * 5 = 25$

Third arrangement, $8 + 3 = 11$ and $8 * 3 = 24$

12. (3)



$AF = AB + BF = (24 + 15) \text{ ft} = 39 \text{ ft}.$

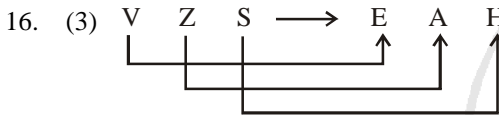
13. (3) Statements 1 and 4 are more or less similar.

All tall people cannot be players.

So, Statement 2 seems to be true.

14. (3) Ravishankar was a great exponent of sitar. Similarly, Bismillah Khan is a famous Shennai player.

15. (4) Christmas is celebrated with cake and sweets. Id-ul-Fitr is celebrated with Biryani.



Pairs of Opposite Letters.

Similarly,



17. (4) $42 - 22 = 20$

Similarly,

$64 - 22 = 42$

18. (4) $536 \Rightarrow 5 + 3 + 6 = 14$

$428 \Rightarrow 4 + 2 + 8 = 14$

$365 \Rightarrow 3 + 6 + 5 = 14$

Similarly,

$266 \Rightarrow 2 + 6 + 6 = 14.$

19. (1) Except NOTA, all other are renowned organisation or agency.

NOTA \Rightarrow None of the above

NATO \Rightarrow North Atlantic Treaty Organisation

NASA \Rightarrow National Aeronautics and Space Administration

NAM \Rightarrow Non-Aligned Movement

20. (2) $G \xrightarrow{+1} H \xrightarrow{+1} I$

$P \xrightarrow{+2} R \xrightarrow{+1} S$

$U \xrightarrow{+1} V \xrightarrow{+1} W$

$A \xrightarrow{+1} B \xrightarrow{+1} C$

21. (1) In the number pair '64 - 36', both the numbers are perfect squares.

$64 = 8 \times 8; 36 = 6 \times 6$

22. (3) Meaningful order of words:

5. Motivation



4. Aim announcement



2. Presentation

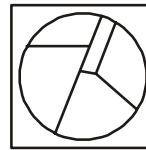


3. Recap

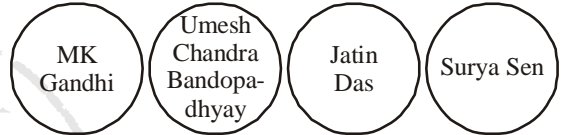


1. Evaluation

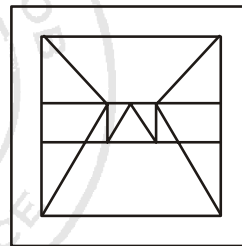
23. (3) All the components of question figure are present in the answer Figure (3)



24. (2) MK Gandhi, Umesh Chandra Bandopadhyay, Jatin Das and Surya Sen, are different persons.



25. (1)



51. (3) Marks obtained by A in English = $2x$ (let)

Marks obtained in Maths = $3x$

Marks obtained in Science = x

According to the question,

$2x + 3x + x = 180$

$\Rightarrow 6x = 180 \Rightarrow x = \frac{180}{6} = 30$

= Marks obtained in science.

52. (2) total age of 5-member family 3 years ago = $17 \times 5 = 85$ years.

Their total present age = $85 + 3 \times 5 = 100$ years

Total present age of 6 members = $17 \times 6 = 102$ years

\therefore Present age of child = $102 - 100 = 2$ years

53. (2) C.P. of 50 pairs of shoes = Rs. $(50 \times 189.50) =$ Rs. 9475

Their S.P. = Rs. 10000

Gain = Rs. $(10000 - 9475) =$ Rs. 525

54. (3) $x\%$ of $y = \frac{xy}{100}$

$\therefore y - \frac{xy}{100} = y \left(1 - \frac{x}{100} \right)$

55. (3) Let both trains meet after t hours.

$$\begin{aligned} \therefore \text{Distance} &= \text{speed} \times \text{time} \\ \Rightarrow 60t - 50t &= 120 \\ \Rightarrow 10t &= 120 \Rightarrow t = 12 \text{ hours} \\ \therefore \text{Required distance} &= 60t + 50t = 110t = 110 \times 12 = 1320 \text{ km.} \end{aligned}$$

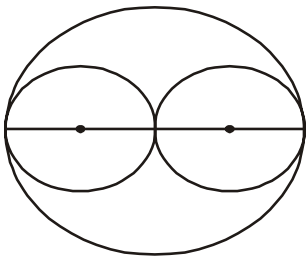
56. (1) Edge of cube = a cm (let)

$$\begin{aligned} \therefore \text{Its total surface area} &= 6a^2 \\ \therefore 6a^2 &= 150 \Rightarrow a^2 = \frac{150}{6} = 25 \end{aligned}$$

$$\Rightarrow a = \sqrt{25} = 5 \text{ cm}$$

$$\therefore \text{Volume of cube} = a^3 = 5 \times 5 \times 5 \text{ cu. cm} = 125 \text{ cu. cm}$$

57. (1)



Radius of circular paper sheet

$$\begin{aligned} &= \frac{\text{Circumference}}{2\pi} = \frac{352}{2\pi} \\ &= \frac{352}{2 \times \frac{22}{7}} = \frac{352 \times 7}{2 \times 22} = 56 \text{ cm} \end{aligned}$$

$$\therefore \text{Radius of each plate} = \frac{56}{2} = 28 \text{ cm}$$

\therefore Circumference of each circular plate

$$= 2\pi r = 2 \times \frac{22}{7} \times 28 = 176 \text{ cm}$$

58. (2) $p^3 + 3p^2 + 3p = 7$

'1' is added on both sides.

$$\Rightarrow p^3 + 3p^2 + 3p + 1 = 7 + 1 = 8$$

$$\Rightarrow (p+1)^3 = (2)^3$$

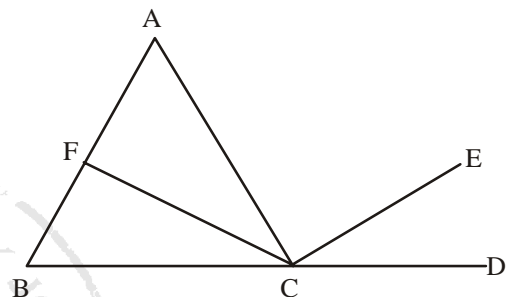
$$\Rightarrow p+1 = 2 \Rightarrow p = 2-1 = 1$$

$$\therefore p^2 + 2p = 1 + 2 \times 1 = 3$$

59. (1) Expression

$$\begin{aligned} &= \frac{(a+b)^3 - (a-b)^3}{(a+b)^2 + (a-b)^2} \\ &= \frac{a^3 + 3a^2b + 3ab^2 + b^3 - (a^3 - 3a^2b + ab^2 - b^3)}{a^2 + b^2 + 2ab + a^2 + b^2 - 2ab} \end{aligned}$$

60. (4)

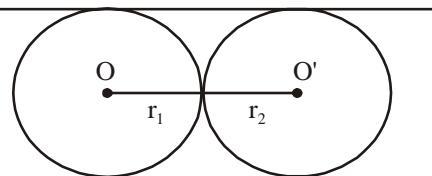


$$\angle ACF = \angle FCB = \frac{\angle C}{2}$$

$$\Rightarrow \angle ACE = \angle ECD = \frac{180^\circ - \angle C}{2} = 90^\circ - \frac{\angle C}{2}$$

$$\therefore \angle FCE = \angle FCA + \angle ACE = \frac{\angle C}{2} + 90^\circ - \frac{\angle C}{2} = 90^\circ$$

61. (1)



\therefore Required length of tangent

$$= \sqrt{(\text{Distance between centres})^2 - (r_1 - r_2)^2}$$

$$= \sqrt{(25)^2 - (16 - 9)^2} = \sqrt{625 - 49} = \sqrt{576} = 24 \text{ cm}$$

62. (1) $\tan \theta = \frac{3}{4} \Rightarrow \tan^2 \theta = \frac{9}{16}$

Expression

$$\begin{aligned} &= \frac{4 \sin^2 \theta - 2 \cos^2 \theta}{4 \sin^2 \theta + 3 \cos^2 \theta} = \frac{4 \frac{\sin^2 \theta}{\cos^2 \theta} - 2 \frac{\cos^2 \theta}{\cos^2 \theta}}{4 \frac{\sin^2 \theta}{\cos^2 \theta} + 3 \frac{\cos^2 \theta}{\cos^2 \theta}} \end{aligned}$$

$$= \frac{4 \tan^2 \theta - 2}{4 \tan^2 \theta + 3} = \frac{4 \times \frac{9}{16} - 2}{4 \times \frac{9}{16} + 3}$$

$$= \frac{\frac{9}{4} - 2}{\frac{9}{4} + 3} = \frac{9 - 8}{9 + 12} = \frac{1}{21}$$

63. (3) $\frac{\cos \alpha}{\cos \beta} = \alpha$

$$\Rightarrow \frac{\cos^2 \alpha}{\cos^2 \beta} = \alpha^2 \Rightarrow \frac{1 - \sin^2 \alpha}{1 - \sin^2 \beta} = \alpha^2$$

$$\Rightarrow 1 - \sin^2 \alpha = \alpha^2 (1 - \sin^2 \beta)$$

$$\Rightarrow 1 - b^2 \sin^2 \beta = a^2 - a^2 \sin^2 \beta$$

$$\Rightarrow 1 - a^2 = b^2 \sin^2 \beta - a^2 \sin^2 \beta$$

$$\Rightarrow 1 - a^2 = (b^2 - a^2) \sin^2 \beta$$

$$\Rightarrow \sin^2 \beta = \frac{1 - a^2}{b^2 - a^2} = \frac{a^2 - 1}{a^2 - b^2}$$

64. (2) First term = $a = 0$

Common difference (d) = $25 \frac{1}{2} - 30 = -4 \frac{1}{2} = \frac{-9}{2}$

Number of terms = $n = 30$

$t_n = a + (n - 1)d$

$$\Rightarrow t_{30} = 30 + (30 - 1) \times \frac{-9}{2}$$

$$= 30 - \frac{29 \times 9}{2} = 30 - \frac{261}{2} = \frac{60 - 261}{2} = \frac{-201}{2} = -100 \frac{1}{2}$$

65. (4) Product of two numbers = HCF \times LCM

Numbers = zx and zy

$\therefore zx \times zy = z \times \text{LCM}$

$\Rightarrow \text{LCM} = xyz$

66. (1) $\therefore 12 \text{ men} = 24 \text{ boys}$

$\therefore 1 \text{ man} = 2 \text{ boys}$

$\therefore 15 \text{ men} + 6 \text{ boys} = 30 \text{ boys} + 6 \text{ boys} = 36 \text{ boys}$

$\therefore M_1 D_1 = M_2 D_2$

$$\Rightarrow 24 \times 66 = 36 \times D_2$$

$$\Rightarrow D_2 = \frac{24 \times 66}{36} = 44 \text{ days}$$

67. (3) 12 months salary = Rs. 90 + turban

$\therefore 9 \text{ months' salary}$

$$= (\text{Rs. } 90 + \text{turban}) \times \frac{9}{12}$$

$$= \text{Rs. } 90 \times \frac{3}{4} + \frac{3}{4} \text{ turban} = \text{Rs. } \frac{135}{4} + \frac{3}{4} \text{ turban}$$

$$\therefore \text{Rs. } \frac{135}{4} + \frac{3}{4} \text{ turban} = \text{Rs. } 65 + \text{turban}$$

$$\therefore \frac{1}{4} \text{ turban} = \frac{135}{4} - 65 = \text{Rs. } \frac{5}{4}$$

$$\therefore \text{Turban} \Rightarrow \frac{5}{4} \times 4 = \text{Rs. } 5$$

68. (1) In radius = $\frac{\text{Side}}{2\sqrt{3}}$

$$\therefore \sqrt{3} = \frac{\text{Side}}{2\sqrt{3}}$$

$$\Rightarrow \text{Side} = 2\sqrt{3} \times \sqrt{3} = 6 \text{ cm}$$

$$\therefore \text{Perimeter of equilateral} = 3 \times 6 = 18 \text{ cm}$$

69. (3) Single equivalent discount for 8% and 5%

$$= \left(8 + 5 - \frac{8 \times 5}{100} \right) \% = (13 - 0.4) = 12.6\%$$

Single equivalent discount for 12.6% and 2%

$$= \left(12.6 + 2 - \frac{12.6 \times 2}{100} \right) \% = 14.6 - 0.252 = 14.348\%$$

$$\therefore \text{Net S.P.} = (100 - 14.348)\% \text{ of } 7500$$

$$= \frac{7500 \times 85.652}{100} = \text{Rs. } 6423.90$$

70. (4) Marked price of article = Rs. x

$$\text{C.P. for X} = \frac{90x}{100} = \text{Rs. } \frac{9x}{10}$$

$$\text{C.P. for Y} = \frac{9x \times 110}{100} = \text{Rs. } \frac{99x}{100}$$

$$\therefore \text{Required ratio} = x : \frac{99x}{100} = 100 : 99$$

71. (1) Girls in Biology = 300

$$\text{Girls in all other departments} = 140 + 180 + 260 + 220 = 800$$

$$\therefore \text{Required percentage} = \frac{300}{800} \times 100 = \frac{75}{2} = 37 \frac{1}{2} \%$$

72. (4) Total number of boys

$$= 60 + 220 + 100 + 160 + 120 = 660$$

$$\text{Total number of girls} = 1100$$

$$\text{Required difference} = 1100 - 660 = 440$$

73. (2) Average number of boys = $\frac{660}{5} = 132$

74. (3) Boys in Biology = 220

$$\therefore \text{Required percentage} = \frac{220}{660} \times 100 = \frac{100}{3} = 33 \frac{1}{3} \%$$

75. (1) Required ratio = 140 : 220 = 7 : 11.