



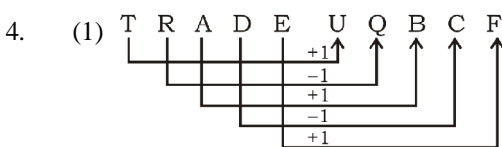
SSC CGL - 170731 GRAND TEST
HINTS AND SOLUTIONS

ANSWER KEY

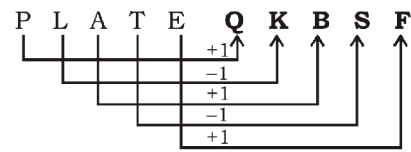
| | | | | | | | |
|----|-----|----|-----|----|-----|-----|-----|
| 1 | (1) | 26 | (2) | 51 | (3) | 76 | (1) |
| 2 | (2) | 27 | (2) | 52 | (1) | 77 | (2) |
| 3 | (4) | 28 | (3) | 53 | (3) | 78 | (1) |
| 4 | (1) | 29 | (1) | 54 | (3) | 79 | (4) |
| 5 | (4) | 30 | (1) | 55 | (1) | 80 | (4) |
| 6 | (2) |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

1. (1) $22 : 22^2 + 22 :: 27 : 27^2 + 27$
 $\downarrow \downarrow$
 506 756

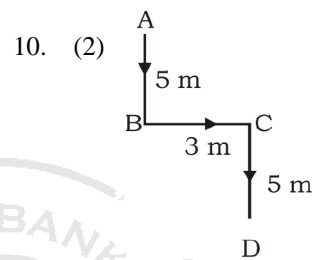
2. (2) A Monarch is a type of Butterfly and Cobra is a type of Snake.
 3. (4) As chairman is the highest authority in a conference, similarly Editor is in Newspaper at highest authority.



Similarly,



5. (4) Excepts (4), the rest options gives the same result as 19.
 6. (2) Except (2), In rest of the options the position of a number gets interchange.
 7. (2) All except Argentina are continents, while Argentina is a country.
 8. (2) All except Director spend money.
 9. (3) REPORT



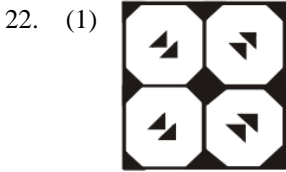
Hence X will face in the end towards South.

11. (2) The statement requests people not to use lift while moving down. This implies that the lift may be used to move up and the request has been made so that more people can use the lift for ascending which would otherwise cause more physical stress than going down the stairs. So, we can conclude that only II is implicit.
 12. (3) The correct order is :
 Arrival Introduction Presentation
 (3) (5) (1)
 Discussion Recommendation
 (4) (2)
 13. (3) Father and mother are parents but they are two different entity.
 14. (2) The pattern is +4, +9, +16, +25, +36, +49 i.e. +2², +3², +4², +5², +6², +7².....
 So, missing term = 94 + 7² = 94 + 49 = 143.
 15. (2) The pattern is × 3, + 4, × 5, + 6, × 7,
 So, missing term = 1022 + 8 = 1030.
 16. (3) In these 2 positions one common face with number 3, is in same position.
 Hence 1 is opposite to 6 and 4 is opposite to 2.
 Therefore 5 is opposite to 3.
 17. (2) When Rahul was born, his brother's age = 6 years
 His father's age = (6 + 32) years = 38 years
 His mother's age = (38 - 3) years = 35 years
 His sister's age = (35 - 25) years = 10 years.
 18. (1) $\frac{25 + 23}{2} = 24$ and $\frac{26 + 28}{2} = 27$
 Therefore $\frac{18 + 14}{2} = 16$.

19. (2) $6 + (2)^2 = 10$
 $10 + (3)^2 = 19$
 $19 + (4)^2 = 35.$

20. (4)

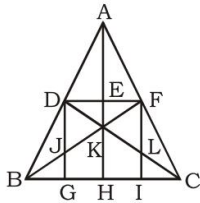
21. (2) Every identity is moving at each of the different 5 places in a block.



23. (3)

24. (1) All the number in the given set are prime numbers. Here, 5 is also a prime number and it belongs to the same group.

25. (3)



The Horizontal lines are DF and BC i.e. 2 in number.
 The Vertical lines are DG, AH and FI i.e. 3 in number.
 The Slanting lines are AB, AC, BF and DC i.e. 4 in number.
 Thus, there are $2 + 3 + 4 = 9$ straight lines in the figure.
 Now, we shall count the number of triangles in the figure.

Simplest triangles are ADE, AEF, DEK, EFK, DJK, FLK, DJB, FLC, BJK and LIC i.e. 10 in number.

Triangles composed of two components each are ADF, AFK, DFK, ADK, DKB, FCK, BKH, KHC, DGB and FIC i.e. 10 in number.

Triangles composed of three components each are DFJ and DFL i.e. 2 in number.

Triangles composed of four components each are ABK, ACK, BFI, CDG, DFB, DFC and BKC i.e. 7 in number.

Triangles composed of six components each are ABH, ACH, ABF, ACD, BFC and CDB i.e. 6 in number.

There is only one triangle i.e. ABC composed of twelve components. There are $10 + 10 + 2 + 7 + 6 + 1 = 36$ triangles in the figure.

51. (3) Minimum pass marks = 50%

$$50\% \rightarrow = 163 + 37$$

$$= 200$$

Maximum marks in exam.

$$100 \rightarrow 400$$

52. (1) According to the question :-

Water filled by the pipe A in 2 hours = $5 \times 2 = 10$ units

Water filled by the pipe B in 1 hour = $4 \times 1 = 4$ units

Total water filled = $(10 + 4) = 14$ units

Now all the pipes will work together.

$$\therefore \text{Required time} = \frac{60-14}{(5+4-3)} = \frac{46}{6} = \frac{23}{3}$$

$$\text{Total time} = 2 + \frac{23}{3} = 9\frac{2}{3} \text{ hours}$$

53. (3) $\tan \theta = \frac{4}{3}$ (given)

$$\therefore \frac{3 \sin \theta + 2 \cos \theta}{3 \sin \theta - 2 \cos \theta} = \frac{3 \tan \theta + 2}{3 \tan \theta - 2}$$

$$= \frac{3 \times \frac{4}{3} + 2}{3 \times \frac{4}{3} - 2} = \frac{4+2}{4-2} = 3$$

54. (3) Suppose the vessel initially contains 8 litres of liquid. Let x litres of this liquid be replaced with water.

Quantity of water in new mixture

$$= \left(3 - \frac{3x}{8} + x \right) \text{ litres}$$

$$\text{Quantity of syrup in new mixture} = \left(5 - \frac{5x}{8} \right) \text{ litres}$$

$$\therefore \left(3 - \frac{3x}{8} + x \right) = \left(5 - \frac{5x}{8} \right)$$

$$\Rightarrow 5x + 24 = 40 - 5x$$

$$\Rightarrow 10x = 16 \Rightarrow x = \frac{8}{5}$$

$$\text{So, part of the mixture replaced} = \left(\frac{8}{5} \times \frac{1}{8} \right) = \frac{1}{5}$$

55. (1) Let the SP of 10 article = 1 = CP of 11 article

$$\text{Gain} = \frac{1}{10} - \frac{1}{11} = \frac{11-10}{110} = \frac{1}{110}$$

$$\text{Gain \%} = \frac{1}{110} \times \frac{100}{1} = 10\%$$

56. (1)

| | A | B | C | D |
|----------|---|----|----|----|
| | 2 | 3 | 3 | 3 |
| | 2 | 2 | 4 | 4 |
| \times | 2 | 2 | 2 | 5 |
| | 8 | 12 | 24 | 60 |

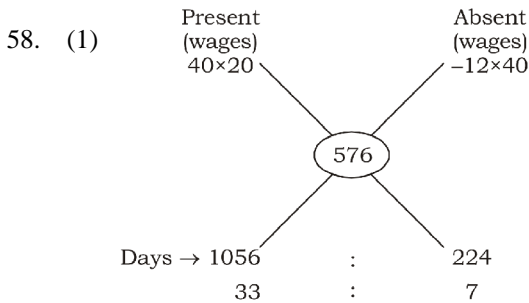
Required ratio (A : D) = 8 : 60 = 2 : 15

57. (3) Let the amount initially the person has = x
 According to the question,

$$\left(\frac{7}{8}x - 1600 \right) \times \frac{4}{5} = 960$$

$$\Rightarrow \frac{7}{8}x - 1600 = 1200 \Rightarrow \frac{7}{8}x = 2800 \Rightarrow x = 3200$$

Hence the person initially had ` 3200



Number of days in which he was absent

$$= \frac{40}{(33+7)} \times 7 = 7 \text{ days}$$

59. (1) $\therefore x = a^{2/3} - a^{-2/3}$
Cubing both the sides

$$x^3 = (a^{2/3} - a^{-2/3})^3$$

$$\Rightarrow x^3 = (a^{2/3})^3 - (a^{-2/3})^3 - 3 \cdot a^{2/3} \cdot a^{-2/3} (a^{2/3} - a^{-2/3})$$

$$\Rightarrow x^3 = a^2 - a^{-2} - 3 \times 1(x)$$

$$\Rightarrow x^3 + 3x = a^2 - a^{-2} = a^2 - \frac{1}{a^2}$$

60. (4) $\sin \frac{\pi}{6} + \cos \frac{\pi}{3} + \tan^3 \frac{\pi}{4} = \sin 30^\circ + \cos 60^\circ + \tan^3 45^\circ$

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

61. (1) Old Ratio = $\frac{1}{4} : \frac{1}{5} : \frac{1}{6}$

$$= \frac{1}{4} \times 60 : \frac{1}{5} \times 60 : \frac{1}{6} \times 60 = 15 : 12 : 10$$

$$\text{Amount of C} = \frac{10}{15+12+10} \times 555$$

$$= \frac{10}{37} \times 555 = ` 150$$

New ratio = 4 : 5 : 6

$$\text{New Amount of C} = \frac{6}{15} \times 555 = 6 \times 37 = ` 222$$

Required Excess Amount = ` (222-150) = ` 72

62. (1) $x \propto \frac{1}{y^2-1} \Rightarrow x = \frac{k}{y^2-1}$

Where k is a constant.

When y = 10, x = 24, then

$$\therefore 24 = \frac{k}{10^2-1} \Rightarrow 24 = \frac{k}{99} \Rightarrow k = 24 \times 99$$

When y = 5, then

$$x = \frac{k}{y^2-1} = \frac{24 \times 99}{5^2-1} = \frac{24 \times 99}{24} = 99$$

63. (2) We know that
[Selling price = cost price + profit]

$$\text{Profit at selling price} = \frac{1 \rightarrow \text{Profit}}{5 \rightarrow \text{S.P.}}$$

$$\text{Profit at cost price} = \frac{1 \rightarrow \text{Profit}}{4 \rightarrow \text{S.P.}}$$

Hence, the selling price = $\frac{5}{4}$ of C.P.

$$\frac{5}{4} \text{ of C.P.} = 600 \Rightarrow \text{C.P.} = ` 480$$

To earn a profit of $\frac{5}{8}$ of cost price, selling price must

be $\frac{13}{8}$ of CP.

$$\text{So, } \frac{13}{8} \times \text{C.P.} = \frac{13}{8} \times 480 = ` 780$$

64. (3) LCM of 9, 10 and 15 = 90
 \Rightarrow The multiple of 90 are also divisible by 9, 10 or 15.
 $\therefore 21 \times 90 = 1890$ will be divisible by them.
 \therefore Now, 1897 will be the number that will give remainder 7.

$$1936 - 1897$$

$$\text{Required number} = 1936 - 1897 = 39$$

65. (3) Let the distance be x km.

Total time = 5 hours 48 minutes

$$= 5 + \frac{48}{60} = \left(5 + \frac{4}{5} \right) \text{ hr} = \frac{29}{5} \text{ hr}$$

$$\Rightarrow \frac{29x}{100} = \frac{29}{5} \Rightarrow x = \frac{100}{5} = 20 \text{ km}$$

66. (1) Ratio of Amount = $\frac{1}{15} : \left(\frac{1}{10} - \frac{1}{15} \right) = \frac{1}{15} : \frac{1}{30} = 1 : 2$

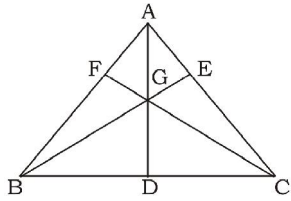
$$\text{Suresh share} = \frac{2}{3} \times 1500 = 1000$$

$$\text{Rama share} = \frac{1}{3} \times 1500 = 500$$

67. (4) We know that the centroid of a triangle divides each median in the ratio of 2 : 1

$$\therefore \text{BG} : \text{BE} = 2 : 3$$

$$\Rightarrow \text{BE} = \frac{3}{2} \text{BG} = \frac{3}{2} \times 6 = 9 \text{ cm}$$



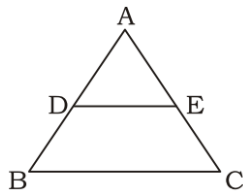
68. (2) Total cost of all calculators
 = $150 \times 250 + 2500 = 40,000$
 Selling price of all calculators

$$= \frac{19}{20} \times (150 \times 320) = 45600$$

Profit percentage

$$= \left(\frac{45600 - 40000}{40000} \right) \times 100 = \left(\frac{5600}{40000} \right) \times 100 = 14\%$$

69. (4)



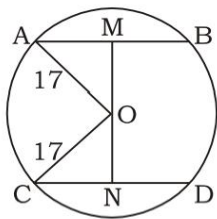
$$\frac{AD}{DB} = \frac{AE}{EC} = \frac{1}{3}$$

$\therefore \Delta ABC \sim \Delta ADE$

$$\therefore \frac{DE}{BC} = \frac{1}{3} \Rightarrow DE = \frac{15}{3} = 5 \text{ cm}$$

70. (4) $MN = 23 \text{ cm}$

$$AM = MB = \frac{16}{2} = 8 \text{ cm}$$



\therefore In ΔAMO ,
 $(OM)^2 = (17)^2 - (8)^2$

$$\therefore OM = 15 \text{ cm}$$

$$\therefore ON = 23 - 15 = 8 \text{ cm}$$

In ΔONC ,

$$(CN)^2 = (17)^2 - (8)^2 \Rightarrow CN = 15 \text{ cm}$$

$$\therefore CD = 2CN = 30 \text{ cm}$$

71. (3) Let the CP be ` 100

After 20% profit, SP = $100 + 100 \text{ of } 20\% = \text{` } 120$

$$\text{Marked price} = 120 \times \frac{100}{75} = \frac{120 \times 4}{3} = \text{` } 160$$

\therefore Required percentage = $160 - 100 = \text{` } 60$ (which is 60% of 100)

72. (3) Volume of the cylinder = $\pi r^2 h$

$$= \frac{22}{7} \times 10 \times 10 \times 21 = 6600 \text{ cu. cm}$$

Volume of the cone = $6600 - 4400 = 2200 \text{ cu. cm}$

$$\therefore 2200 = \frac{1}{3} \pi \times 10^2 \times h$$

$$\Rightarrow 2200 = \frac{2200}{21} \times h \Rightarrow h = 21 \text{ cm}$$

73. (3) $2\frac{1}{2}\% = \frac{1}{40}$

Initial value New value

40 41

40 41

40 41

64000 : 68921

Hence the population of the town after 3 years = 68,921

74. (2) Average cost of a chair = ` x, then

$$x \times 12 + 6 \times 750 = 7800$$

$$\Rightarrow 12x = 7800 - 4500 = 3300$$

$$\Rightarrow x = \frac{3300}{12} = \text{` } 275$$

75. (1) The cost price paid by A

$$= 2310 \times \frac{100}{100 + P_1\%} \times \frac{100}{100 + P_2\%}$$

$$= 2310 \times \frac{100}{100 + 10} \times \frac{100}{100 + 5} = \text{` } 2000$$

76. (1) Substitute 'by' in place of 'with'. Phrase 'take somebody by surprise' means 'to happen unexpectedly so that somebody is slightly shocked'.

77. (2) 'Insist' will take 'on' after it. 'Insist on doing something' means 'to continue doing something'.

78. (1) Replace 'away' by 'out'. Phrase 'put out' means 'to stop something from burning and shining'.

82. (2) 'Few' means 'hardly any', whereas 'a few' means 'some at least'.

83. (3) Use a noun i.e. 'Upbringing'.