# SSC MOCK TEST - 458 (SOLUTION)

1. (2) As,

$N \rightarrow \frac{14}{2} = 7 \rightarrow (7)^2 = 49$

$B \rightarrow \frac{2}{2} = 1 \rightarrow (1)^2 = 1$

$P \rightarrow \frac{16}{2} = 8 \rightarrow (8)^2 = 64$

$D \rightarrow \frac{4}{2} = 2 \rightarrow (2)^2 = 4$

Similarly,

$R \rightarrow \frac{18}{2} = 9 \rightarrow (9)^2 = 81$

$F \rightarrow \frac{6}{2} = 3 \rightarrow (3)^2 = 9$

$T \rightarrow \frac{20}{2} = 10 \rightarrow (10)^2 = 100$

$H \rightarrow \frac{8}{2} = 4 \rightarrow (4)^2 = 16$

2. (4) As,

1 5 3
↓ ↓ ↓

$1^2 + 5^2 - 3 \times 2 = 26 - 6 = 20$

Similarly,

4 5 4
↓ ↓ ↓

$(4)^2 + (5)^2 - 4 \times 2 = 41 - 8 = 33$

3. (4) Fork, Knife and Bin are used in kitchen, while Sword is used in battle.

4. (3) Krone, Rial and Peso is a currency of Denmark, Iran and Argentina respectively, while 'Quito' is the capital of 'Ecuador'.

5. (3) Amrita's position from the left end $\rightarrow 3^{rd}$

Sumitra's position from the right end $\rightarrow 26^{th}$

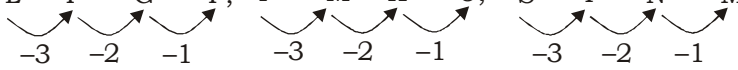
After changing Amrita's position from the left end $\rightarrow 35^{th}$

$\therefore$ Required Number of girls = 35 + 26 - 1 = 60

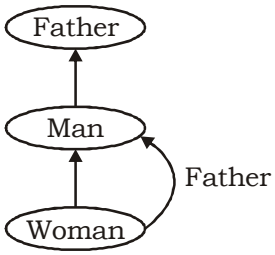
6. (2) 3125, 3280, 3435, 5220, 5430, 5640, 3320, 3510, 3700

+155 +155 +210 +210 +190 +190

7. (3) L I G F, P M K J, S P N M,




8. (3)




Hence, the women is daughter of that man.

9. (3) It was Saturday on 31 December 2005.

Number of odd days from 2006 to 2010 = 1 + 1 + 2 + 1 + 1 = 6

It was Saturday + 6 = Friday on 31 December 2010.

Hence, it was Sunday on 2 January 2011.

10. (3) HEMA/HEMA/HEMA/HEMA

11. (3)

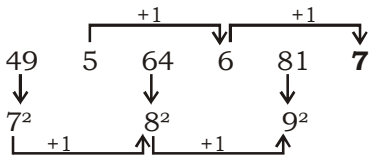
C +1 Consonant D
O Opposite Vowel L
U Opposite Vowel F
R +2 Consonant T
I Opposite Vowel R
E Opposite Vowel V
R +3 Consonant U

P +1 Consonant Q
A Opposite Vowel Z
R +2 Consonant T
E Opposite Vowel V
N +3 Consonant Q
T +4 Consonant X

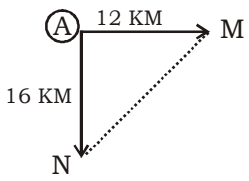
12. (4)

| | | | |
|---|---|---|---|
| 3 | 15 | 4 | 3 × 4 + 3 = 15 |
| 7 | 38 | 5 | 7 × 5 + 3 = 38 |
| 3 | ? | 5 | 3 × 5 + 3 = 18 |

13. (4)



14. (3)



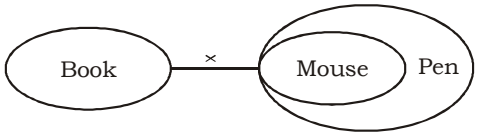

MN = $\sqrt{(AM)^2 + (AN)^2}$ = $\sqrt{(12)^2 + (16)^2}$ = $\sqrt{144 + 256}$

= $\sqrt{400}$ = 20 km

15. (4) 3. Karol Bagh → 1. Delhi → 4. North India → 2. India → 5. Asia

16. (3)

17. (1)




I. True II. False III. False

Hence, only conclusion I follows.

18. (4) 19. (2)

20. (1) Angle made by hour hand in $\frac{125}{12}$ hours = $\left(\frac{360}{12} \times \frac{125}{12}\right)^\circ = 312.5^\circ$

Angle made by minute hand in 25 minutes = $\left(\frac{360}{60} \times 25\right)^\circ = 150^\circ$

∴ Reflex angle = 360° – (312.5° – 150°) = 360° – 162.5° = 197.5°

21. (2) 22. (1) 23. (1) 24. (3)

25. (2) From positions X and Y we conclude that 1, 5, 6 and 3 lie adjacent to 4. Therefore, 2 must lie opposite 4. From positions Y and Z we conclude that 4, 3, 2 and 5 lie adjacent to 6. Therefore, 1 must lie opposite 6. Thus, 2 lies opposite 4, 1 lies opposite 6 and consequently 5 lies opposite 3. As analysed above, the number on the face opposite 4 is 2. In position Y, since 4 lies on the top, therefore 2 must lie at the bottom face.

26. (2) Monopoly is a market form in which the market is dominated by a single seller for goods and services which has no substitutes and there are barriers for entry of a new seller as he himself is the law and price maker.

27. (2) In boxing, bleeder means "a boxer who gets cut easily" or "A fighter who is vulnerable to cuts".

28. (1) **Herpetology:** It is the branch concerned with the study of amphibians.

**Ethology:** It is the science of animal behaviour.

**Mammology:** It is Speacialised science that deals with the study of mammals.

**Morphology:** It is The study of forms of things.

30. (3) Isohyets lines are imaginary lines joining places with same level of rainfalls. Isohyets is derived from the Greek word where hyets means Rainfall.

31. (3) Right to Equality in the Indian Constitution includes abolition of untouchability.

32. (4) Static friction is the friction that exists between a stationary object and the surface on which it's resting. Sliding friction refers to the resistance created by any two objects when sliding against each other. This friction is also known as kinetic friction. The sliding friction is less than static friction because of the interlocking of irregularities in the two surfaces.

33. (1) Indian Mughal paintings originated during the rule of Mughal Emperor, Humayun (1530-1540).

35. (2) India's first official census operation was undertaken in 1881. It has been conducted after every 10 years and it has been conducted 15 times from then. It includes acquiring and recording information about the members of a given population.

37. (4) Bast fibre (also called phloem fibre or skin fibre) is plant fibre collected from the phloem (the "inner bark", sometimes called "skin") or bast surrounding the stem of certain dicotyledonous plants.

38. (1) A change in which no new substances are formed is called physical Change. A physical change involves a change in physical properties.

40. (2) Anti-defection law is mentioned under 10th schedule of the Indian Constitution and was a 52nd amendment.

41. (2) The ozone layer or ozone shield is a region of Earth's stratosphere that absorbs most of the Sun's ultraviolet radiation.

42. (2) Kolkata Port is the oldest operating port in India built by the British East India Company. It was established in 1870. It is a riverine port. In the 19th century, this Port was the premier port in British India.

48. (2) The seven ancient wonders of the world include Great Pyramid at Giza, Egypt; Hanging Gardens of Babylon; Statue of Zeus at Olympia, Greece; Temple of Artemis at Ephesus; Mausoleum at Halicarnassus; Colossus of Rhodes and Lighthouse at Alexandria, Egypt; The Taj Mahal in India.

51. (4) Total of 4 terms = $40 \times 4 = 160$

Let the first term = x

Sum of the remaining terms = 3x

ATQ,

$x + 3x = 160$

$4x = 160$

$x = \frac{160}{4} = 40$

52. (1) Let the distance travelled on the bicycle be x km.

Distance travelled on foot = (50 – x) km

ATQ,

$$\frac{x}{10} + \frac{50 - x}{5} = 9$$

$$\frac{x + 100 - 2x}{10} = 9$$

$-x + 100 = 90$

$x = 10$ km

53. (2) Let n = 7, then condition satisfied.

Hence, $7n = 7 \times 7 = 49$

Now, $49 \div 5$, then remainder is 4.

Let the number be 5x.

Then, The integer $n = 5x + 2$

Take $x = 1$

Then, $n = 7$

The value of $7n = 49$

49 divided by 5 leaves the remainder 4

$\therefore$ 4 is the remainder, if 7n is divided by 5.

54. (1) $a + b = 9$ and $ab = 8$

$(a + b)^3 = a^3 + b^3 + 3ab\,(a + b)$

$9^3 = a^3 + b^3 + 3 \times 8\,(9)$

$729 = a^3 + b^3 + 216$

$\therefore \quad a^3 + b^3 = 729 - 216 = 513$

55. (2) $(\text{cosec } 60° - \tan 45°) \cot 30° \tan 60°$

$$= \left(\frac{2}{\sqrt{3}} - 1\right)\sqrt{3} \times \sqrt{3}$$

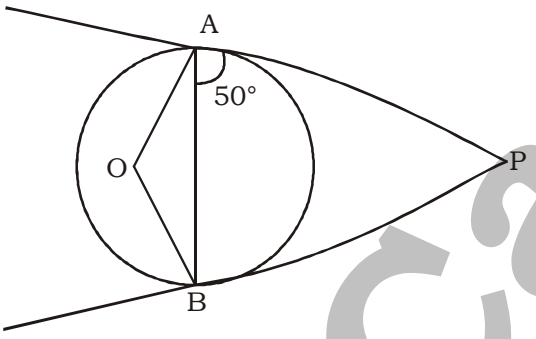
$$= \frac{2 - \sqrt{3}}{\sqrt{3}} \times 3 = \frac{6 - 3\sqrt{3}}{\sqrt{3}} = 2\sqrt{3} - 3$$

56. (3) $(26 - 13 \times 2) \div 2 + 1 \times 4 + 5 \div 15 + 4$

$$= 0 \div 2 + 1 \times 4 + \frac{5}{15} \times 4$$

$$= 4 + \frac{4}{3} = \frac{16}{3}$$

57. (1)




PA = PB and $\angle PAB = 50°$

$\angle PBA = \angle PAB$ (Angle opposite sides are equal)

$\angle PBA = 50°$

In $\Delta PAB$,

$\angle PBA + \angle PAB + \angle APB = 180°$ (Angle sum property of triangle)

$\angle APB = 180° - 100°$

$\angle APB = 80°$

$\angle AOB + \angle APB = 180°$ (Supplementary angles)

$\angle AOB = 180° - 80°$

$\therefore \quad \angle AOB = 100°$

58. (3) 12 men can complete in 12 days.

1 work 1 man can complete in 1 day $\frac{1}{12 \times 12}$ part of the work.

Men can complete in 6 days $\frac{6 \times 6}{12 \times 12}$ part of work = $\frac{1}{4}$th of the work

Number of remaining men = 6

Remaining work = $\frac{3}{4}$

12 men can complete 1 work in 12 days

6 men can complete $\frac{3}{4}$ work in $\frac{12\times12\times3}{6\times4}$ = 18 days

∴ Number of extra days = 18 – 6 = 12 days

59. (4) Let the two numbers are x and (25 – x).

LCM × HCF = Multiplication of two numbers

$30 \times 5 = x \times (25 - x)$

$30 \times 5 = 25x - x^2$

$x^2 - 25x + 150 = 0$

$x^2 - 10x - 15x + 150 = 0$

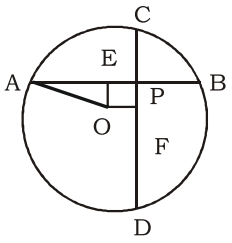
$x(x - 10) - 15(x - 10) = 0$

$(x - 10)(x - 15) = 0$

x = 10 and 15

∴ Required difference = 15 – 10 = 5

60. (3)




As we can see from the diagram

$OE^2 = OA^2 - AE^2$

Here, OA = 15 cm and AE = $\frac{AB}{2} = \frac{20}{2}$ = 10 cm

$OE^2 = 15^2 - 10^2 = 125$ cm

Similarly, $OF^2 = OD^2 - DF^2$

$= 225 - 144 = 81$ cm$^2$

Since, OEFP forms a rectangle

∴ OP = $\sqrt{125+81} = \sqrt{206}$ cm

61. (2) Let the cost price of TV be ₹ 100.

Marked price = $100\times\frac{130}{100}$ = ₹ 130

Selling price = $130\times\frac{75}{100}$ = ₹ 97.50

Loss = 100 – 97.50 = ₹ 2.50

∴ Loss% = $\left(\frac{2.50}{100}\times100\right)\%$ = 2.5%

62. (4) Perimeter of rectangular plot = 2 × (40 + 25) = 2 × 65 = 130 m

Perimeter of square plot = 4 × side

4 × side = 130

$\therefore$ Side = $\frac{130}{4}$ = 32.5 m

63. (1) Side of a cube = HCF of 6, 42, 45 = 3 cm

$\therefore$ Least possible number of cubes = $\frac{6\times42\times45}{3\times3\times3}$ = 420

64. (3) Filling Pipe $6\overline{)42}$ 7

Filling Pipe + leakage $7\overline{)}$ $\frac{6}{1}$

$\therefore$ Time taken by leakage to empty the tank = $\frac{42}{1}$ = 42 hours

65. (4) Percentage discount = $\left(\frac{MP-SP}{MP}\times100\right)\%$

$= \left(\frac{700-625}{700}\times100\right)\% = 10.71\%$

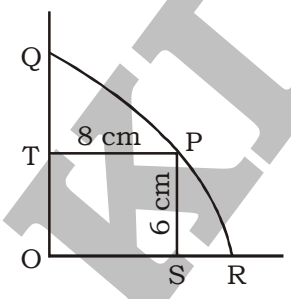
66. (4) Required speed = $\left(\frac{100+120}{40}\right)$ m / s

$= \left(\frac{220}{40}\times\frac{18}{5}\right)$ km / h = 19.8 km/h

67. (4) Average age of the family = $\frac{67\times2+35\times2+6\times3}{2+2+3}$

$= \frac{222}{7} = 31\frac{5}{7}$ years

68. (2)

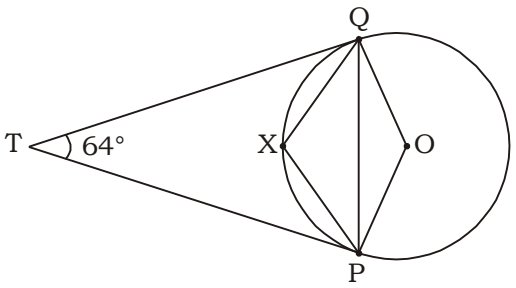



From the figure,

OP = $\sqrt{6^2+8^2}$ = 10 cm

Length of the Arc OR = $\frac{\pi r\theta}{180} = \frac{\pi\times10\times90}{180} = 5\pi$ cm

69. (1)




$\angle PTQ + \angle POQ = 180°$

$\angle POQ = 180 - 64 = 116°$

$\therefore \quad \angle PXQ = 180° - \frac{1}{2}\angle POQ$

$= 180° - \frac{1}{2} \times 116° = 122°$

70. (3) $\frac{a}{b} = \frac{\sqrt{5}+1}{\sqrt{5}-1} \times \frac{\sqrt{5}+1}{\sqrt{5}-1}$

$\frac{a}{b} = \frac{(\sqrt{5}+1)^2}{(\sqrt{5}-1)^2}$

$\frac{a}{b} = \frac{5+1+2\sqrt{5}}{5+1-2\sqrt{5}}$

$\frac{a}{b} = \frac{6+2\sqrt{5}}{6-2\sqrt{5}}$

$\frac{a}{b} = \frac{3+\sqrt{5}}{3-\sqrt{5}}$

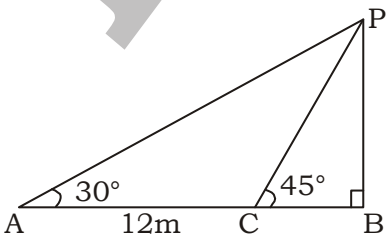
Applying componendo and dividendo, we have

$\frac{a+b}{a-b} = \frac{3+\sqrt{5}+3-\sqrt{5}}{(3+\sqrt{5})-(3-\sqrt{5})}$

$\frac{a+b}{a-b} = \frac{6}{2\sqrt{5}} = \frac{3}{\sqrt{5}}$

$\left(\frac{a-b}{a+b}\right)^2 = \left(\frac{\sqrt{5}}{3}\right)^2 = \frac{5}{9}$

71. (1)



In $\triangle PBC$,

$\tan 45° = \frac{PB}{BC}$

$1 = \frac{PB}{BC}$

$PB = BC$

In $\triangle PBA$,

$\tan 30° = \frac{PB}{AB}$

$\frac{PB}{AC + CB} = \frac{1}{\sqrt{3}}$

$\frac{PB}{12 + PB} = \frac{1}{\sqrt{3}}$

$\therefore \quad PB = \frac{12}{\sqrt{3} - 1} = 6(\sqrt{3} + 1)$

$= 6 \times 2.732 = 16.392$ m

72. (3) Expenditure on materials and taxes together = (22 + 36)% of 500 = 58% of 500
$= 0.58 \times 500 = ₹ 290$ crores

73. (3) Required angle = $\left(\frac{36}{100} \times 360°\right)^{\circ} = 129.6°$

74. (4) Number of employees in company Q in the year 2011 = $200 \times \frac{130}{100} = 260$

$\therefore$ Required ratio = 260 : 320 = 13 : 16

75. (4) Required average = $\frac{8500}{100} \times \frac{1}{3} \times (24 + 20 = 15) = 1671.66 \approx 1671$

# MEANINGS IN ALPHABETICAL ORDER

| | | |
|---|---|---|
| Absurd | unreasonable, illogical, or inappropriate | बेतुका |
| Annihilate | destroy utterly | सर्वनाश करना |
| Antagonism | active hostility or opposition | सक्रिय शत्रुता या विरोध |
| Aversion | a strong dislike or disinclination | घृणा |
| Bothersome | causing irritation or annoyance | तंग करने वाला |
| Emphasis | special importance, value, or prominence given to something | किसी चीज को दिया जाने वाला विशेष महत्त्व, मूल्य या प्रमुखता |
| Ethos | the characteristic spirit of a culture, era, or community as manifested in its beliefs and aspirations | प्रकृति |
| Exaggerate | overstate or overemphasize | बढ़ा चढ़ाकर कहना |
| Exhilarate | make (someone) feel very happy, animated, or elated | खुश |
| Idiotic | very stupid | मूर्खतापूर्ण |
| Ignorance | lack of knowledge or information | अज्ञान |
| Initiate | cause (a process or action) to begin | आरंभ करना |
| Innocuous | not harmful or offensive | हानि न करने वाला |
| Inoffensive | not objectionable or harmful | अनापत्तिजनक, स्वीकार्य |
| Intriguing | arousing one's curiosity or interest; fascinating | दिलचस्प |
| Lethargy | a lack of energy and enthusiasm | सुस्ती, आलस्य |
| Mundane | lacking interest or excitement; dull | उबाऊ |
| Naïve | (of a person or action) showing a lack of experience, wisdom, or judgment | निष्कपट |
| Obliterate | wipe out | मिटाना |
| Onslaught | a fierce or destructive attack | हमला |
| Overreach | the act of doing more than your authority allows | अपने अधिकार का अति प्रयोग |
| Praiseworthy | deserving approval and admiration | सराहनीय |
| Relevant | closely connected or appropriate to the matter at hand | प्रासंगिक |
| Revive | restore to life or consciousness | पुर्नजीवित करना |
| Scanty | small or insufficient in quantity or amount | थोड़ा |
| Swabbing | wash with a mop | झाड़ू से साफ करना |
| Taboo | a social or religious custom prohibiting or forbidding a particular practice | पाबंदी |
| Triviality | lack of seriousness or importance; insignificance insignificance | महत्वहीनता, तुच्छता |

# SSC MOCK TEST - 458 (ANSWER KEY)

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

76. (3) Since, the sentence is in present tense, the 'if clause' should also be in present tense. Change 'placed' into 'place'.

77. (2) Change 'have' into 'has', as it should follow the subject of the sentence 'the popular belief'.

85. (2) 'Hang by a thread' is an idiom which means 'to be in a very dangerous situation or state; to be very close to death, failure, etc.'

86. (2) 'Call out' means 'to publicly criticize or fault someone or something.'

89. (3) The correct spelling of 'Intigrate' is 'Integrate', 'Exhilerate' is 'Exhilarate' and 'Exaggarate' is 'Exaggerate'.

90. (1) The correct spelling is 'Occasionally'.