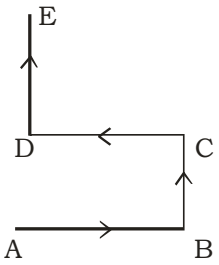
SSC MOCK TEST - 406 (SOLUTION)

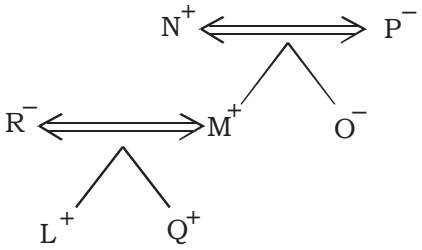
1. (2) Elephant breathe through Trunk and Fish breathe through his Gill. Similarly, Kangaroo breathe through his pouch.
2. (1) As, $23 \times (2^2 + 3^2) = 299$
   Similarly, $45 \times (4^2 + 5^2) =$ **1845**
3. (1) Except Lawyer, others are related to politics.
4. (1) Except 593, the sum of digits of other number is 13.
5. (3) As, R E T A I L E R $\Rightarrow$ 18 + 5 + 20 + 1 + 9 + 12 + 5 + 18 = 88 $\Rightarrow$ 88 – 8 = 80 (No. of letters)
   And, M A N A G E R $\Rightarrow$ 13 + 1 + 14 + 1 + 7 + 5 + 18 = 59 $\Rightarrow$ 59 – 7 = 52 (No. of letters)
   Similarly, P E R M I S S I O N $\Rightarrow$ 16 + 5 + 18 + 13 + 9 + 19 + 19 + 9 + 15 + 14 = 137
   $\Rightarrow$ 137 – 10 = 127 (No. of letters)
6. (1) 1295 1405 1537 1693 1875
   $+11^2 - 11$ $+12^2 - 12$ $+13^2 - 13$ $+14^2 - 14$
7. (2) D K F N H Q J T L W
   +2 +2 +2 +2
   +3 +3 +3 +3
8. (4) As, 217 + (2 × 1 × 7) = 231
   231 + (2 × 3 × 1) = 237
   Similarly, 935 + (9 × 3 × 5) = 1070
   1070 + (1 × 0 × 7 × 0) = 1070
9. (3) x**u**ml**v**/xv**n**lv/**x**wolv/xx**p**lv
10. (1) After 6 years, sum of ages of A, B and C will be 62 years.
    Thus, at present sum of their ages = 62 – (6 × 3) = 44 years
    Before 3 years, sum of ages of B and C = 19 years
    At present sum of their ages = 19 + (3 × 2) = 25 years
    Thus, present age pf A = 44 – 25 = 19 years
11. (4)
12. (3) **In the first row,**
    (17 + 42) – 25 = 34 $\Rightarrow$ 3 × 4 = 12
    In the second row,
    (19 + 61) – 44 = 36 $\Rightarrow$ 3 × 6 = 18
    In the third row,
    (27 + 63) – 35 = 35 $\Rightarrow$ 5 × 5 = 25
13. (1) 156 ÷ 13 + 12 – 14 × 25 = 350
    Change + and –,
    156 ÷ 13 – 12 + 14 × 25 = 350
    12 – 12 + 14 × 25 = 350
    0 + 350 = 350
    350 = 350
14. (1) 1. Story $\rightarrow$ 5. Shooting $\rightarrow$ 2. Telecast $\rightarrow$ 3. Viewers $\rightarrow$ 4. Feedback

15. (3)



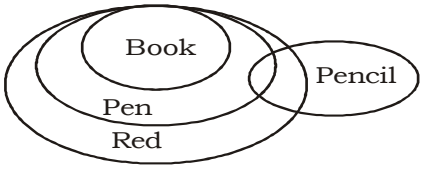
Hence, Anil is in North direction.

16. (2)



Hence, Q is the grandson of P.

17. (2)



I. True II. True

Hence, both the conclusions follow.

18. (4) 19. (3)

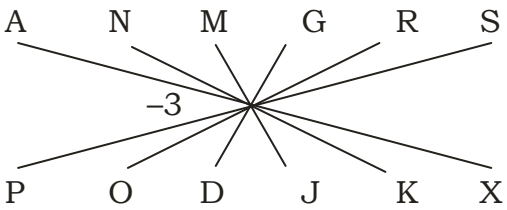
20. (4) 2 January 2008 = Wednesday

Odd days between 2008 and 2012 = 2 + 1 + 1 + 1 = 5

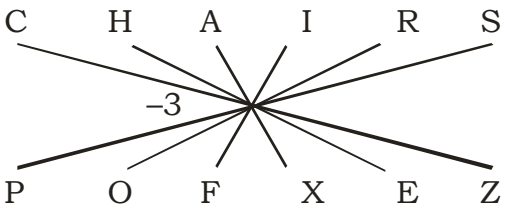
2 January 2012 = Wednesday + 5 = Monday

1 January 2012 = Monday – 1 = Sunday

21. (3) As,



Similarly,



22. (1) 23. (1) 24. (1) 25. (2)

26. (1) The Rig Veda is the oldest among all the four Vedas.

27. (3) Kasturba Gandhi died in detention (in 1944) at Aga Khan palace, Poona, Bombay presidency, British India.

28. (3) Mars has almost the same duration of rotation about its own axis as that of Earth. Mars rotation is 24 hours, 39 minutes, and 35 seconds.

29. (3) Andes mountain ranges are the longest mountain ranges in the world having an approximate length of 7000km. They stretch from north to south through seven countries, along the west coast of the continent South America.

30. (3) The Garo, Khasi and Jaintia hills were formed in the same age as the Malwa Plateau. The Garo, Khasi and jaintia are part of the Peninsular India. The Peninsular plateau continues far eastward from Rajmahal hills into north-east as the Shillong plateau, the gap between them is known as the Rajmahal-Garo gap.

36. (2) The National Tiger Conservation Authority (NTCA) recently granted approval for the establishment of the 54th tiger reserve in Rajasthan's Karauli and Dholpur districts. This decision marks a significant stride in wildlife preservation efforts within Rajasthan.

37. (1) Analog computer, any of a class of devices in which continuously variable physical quantities, such as electrical potential, fluid pressure, or mechanical motion, are represented in a way analogous to the corresponding quantities in the problem to be solved.

40. (3) These Awards are conferred by the President of India at ceremonial functions which are held at Rashtrapati Bhawan usually around March/ April every year. For the year 2023, the President has approved conferment of 106 Padma Awards including 3 duo cases (in a duo case, the Award is counted as one) as per list below.

41. (4) Trophies related to lawn tennis are: Barna Bellack Cup, Davis Cup, Grand Prix, Jaylaxmi Cup (Women's), Rajendra Prasad Cup, Rajkumar Cup (Junior boys), Rajkumari Cup (Junior girls), Ramanujan Trophy, Thant Cup, Travancore Cup (Women's), Wightman Cup and Wimbledon Trophy.

43. (1) R Madhavan's directorial debut, Rocketry: The Nambi Effect won the Best Feature Film at the 69th National Film Awards.

47. (2) Sound waves in air and any fluid medium are longitudinal waves because particles of the medium through which the sound is transported vibrate parallel to the direction that the sound waves moves.

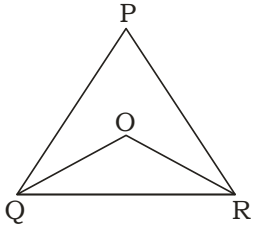
48. (3) When ants bite, they inject formic acid into the muscle tissue. This formic acid is found in the mandible of ants.

50. (2) In Tamil Nadu, Chief Minister's breakfast scheme has been extended to 31,000 schools across the State, benefiting 17 lakh students.

51. (2) $$\frac{4\cos(270°+\theta)\sin^3(90°-\theta)-4\cos(360°+\theta)\cos^3(90°+\theta)}{\cos(90°+4\theta)} = \frac{4\sin\theta\cos^3\theta-4\cos\theta\sin^3\theta}{-\sin 4\theta}$$

$$= \frac{4\cos\theta\sin\theta\left(\cos^2\theta-\sin^2\theta\right)}{2\sin 2\theta\cos 2\theta} = \frac{2\sin 2\theta\cos 2\theta}{2\sin 2\theta\cos 2\theta} = -1$$

52. (1)



$\angle QPR = 80°$

$\angle QOR = 90° + \frac{1}{2}\angle QPR = 90° + 35° = 40° = 130°$

53. (1) $(3x + 1)^3 + (x – 3)^3 + (4 – 2x)^3 + 6(3x + 1)(x – 3)(x – 2) = 0$

$(3x + 1)^3 + (x – 3)^3 + (4 – 2x)^3 – 3(3x + 1)(x – 3)(4 – 2x) = 0$

$(3x + 1)^3 + (x – 3)^3 + (4 – 2x)^3 = 3(3x + 1)(x – 3)(4 – 2x)$

We know,

$a^3 + b^3 + c^3 = 3abc$, if $(a + b + c) = 0$

Here, $(3x + 1) + (x – 3) + (4 – 2x) = 0$

$2x + 2 = 0$

$x = – 1$

54. (3) Let the area of the circle 'C' be x^2.

$pr^2 = x^2$

$$r = \sqrt{\frac{x^2}{\pi}} - \frac{x}{\sqrt{\pi}}$$

Now, are of square 'S' = x^2

$(Side)^2 = x^2$

Side = $\sqrt{x^2} = x$

Now, ratio of perimeters of C and S

$$2p = \frac{x}{\sqrt{\pi}} : 4x$$

$$\sqrt{\pi} : 2$$

By squaring,

$$\pi : 4 = \frac{22}{7} : 4$$

= 22 : 28 = 11 : 14

55. (4) We know that,

Last term = First term + (n – 1)d

Numbers which are divisible by 3 from 500 to 650

$648 = 501 + (n – 1)3$

$648 – 501 = 3n – n$

$147 + 3 = 3n$

$$n = \frac{150}{3} = 50$$

Numbers which are divisible by 7 from 500 to 650

$644 = 504 + (n – 1)7$

$644 – 504 = 7n – 7$

$140 + 7 = 7n$

$$n = \frac{147}{7}$$

$n = 21$

Numbers which are divisible by 21 from 500 to 650

$630 = 504 + (n - 1)21$

$630 - 504 = 21n - 21$

$126 + 21 = 21n$

$n = \frac{147}{21}$

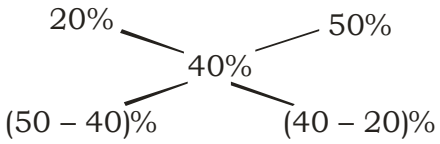
$n = 7$

Numbers which are divisible by 3 or 7 from 500 to 650 = 50 + 21 – 7 = 64

Total numbers from 500 to 650 = 650 – 500 + 1 = 151

Therefore, numbers which are neither divisible by 3 nor by 7 = 151 – 64 = 87

56. (1) **Solution A** **Solution B**



= 10% : 20%

∴ Required ratio = 1 : 2

57. (2) Total height of 120 persons = 153.5 × 120 = 18420 cm

Number of males = $\frac{120}{7+5} \times 7 = 70$

Number of females = 120 – 70 = 50

Total height of males = 70 × 1552 = 10864 cm

Total height of females = 18420 – 10864 = 7556

Now, average height of females = $\frac{7556}{50} = 151.72$

∴ Value of x = 151.12

58. (4) SI in 1 year = $\frac{13250.50 - 857.1}{7.5 - 4} = \frac{4679.50}{3.50}$ = ₹ 1337

ATQ,

$X + 1337 \times 4 = 8571$

X = 8571 – 5348 = ₹ 3223

Now,

$SI = \frac{P \times R \times T}{100}$

$1337 = \frac{3223 \times y \times 1}{100}$

∴ $y = \frac{1337 \times 100}{3223} = 41.48\%$

59. (2) Let the third proportion be x.

ATQ,

12 : 48 : 48 : x

$$\frac{12}{48} = \frac{48}{x}$$

$$\therefore \quad x = \frac{48 \times 48}{12} = 192$$

60. (3) Speed of Train A = 42 m/s

Distance travelled by A in 8 seconds = 42 × 8 = 336 m

Relative speed of Train A and B = 46 – 42 = 4 m/s

Time taken by Train B to caught Train A = $\frac{336}{4}$ = 84 sec

$\therefore$ Distance travelled by Train B to before Train A is caught by Train B = 84 × 46 = 3864 m

61. (4) P = ₹4800

A = ₹5520

T = 3 years

SI = 5520 – 4800 = ₹720

$$R = \frac{720 \times 100}{4800 \times 3} = 5\%$$

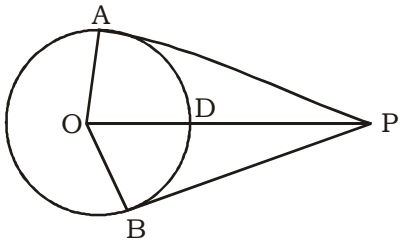
Now, A = ₹ 12000

R = 5%

T = 5 years

$$\therefore \quad P = \frac{A \times 100}{100 + (R \times T)} = \frac{12000 \times 100}{100 + 25} = ₹9600$$

62. (2)



OA = OB = r

OP = 2r

AP = PB = $\sqrt{4r^2 - r^2} = \sqrt{3}r$

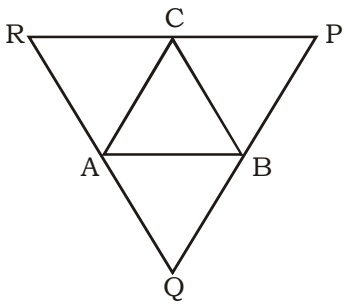
$$\sin \angle APO = \frac{OA}{OP} = \frac{r}{2r} = \frac{1}{2}$$

$\sin \angle APO = \sin 30°$

$\angle APO = 30°$

$\therefore \quad \angle APB = 60°$

63. (4)



$AQ \parallel CB$ and $AC \parallel QB$

AQBC is a parallelogram.

BC = AQ

Again, $AR \parallel BC$ and $AB \parallel RC$

ARCB is a parallelogram.

BC = AR

AQ = AR

$AQ = AR = \frac{1}{2}QR$

Similarly, $AB = \frac{1}{2}PR$ and $AC = \frac{1}{2}PQ$

$\therefore$ Required ratio = (PQ + QR + PR) : (AB + BC + AC) = 2 : 1

64. (2) $\left[\left(\sqrt[5]{x^{-\frac{3}{5}}}\right)^{-\frac{5}{3}}\right]^5$

$= \left(x^{-\frac{3}{5}}\right)^{\frac{1}{5}\times-\frac{5}{3}\times5} = x^{-\frac{3}{5}\times-\frac{5}{3}} = x$

65. (3) Let the numbers be 7x and 7y.

Where x and y are co-primes.

Now, LCM of 7x and 7y = 7xy

7xy = 140

$xy = \frac{140}{7} = 20$

Now, required values of x and y, whose product is 50 and are co-prime will be 4 and 5.

Numbers are 28 and 35, which lie between 20 and 45.

$\therefore$ Required sum = 28 + 35 = 69

66. (4) Original rate = ₹x per lemon

New rate = $x \times \frac{120}{100} = ₹\frac{6x}{5}$

ATQ,

$\frac{48}{x} - \frac{48 \times 5}{6x} = 4$

$\frac{48}{x} - \frac{40}{x} = 4$

$\frac{8}{x} = 4$

$x = 2$

New rate = $\frac{6 \times 2}{5} = ₹\frac{12}{5}$ per lemon

∴ Rate of lemon per dozen = $\frac{12}{5} \times 12 = ₹28.80$

67. (1) Volume of the hemispherical ditch = $\frac{2}{3}\pi r^3 = \frac{2}{3}\pi \times (15)^3 = 2250\pi\ m^3$

Volume of the cylindrical ditch = Volume of each dug out = $pr^2h = \pi \times 8^2 \times 4 = 256\pi\ m^3$
So, extraction of hemispherical ditch by the earth dug out from the cylindrical ditch

$= \frac{256p}{2250p} = \frac{128}{1125}$

68. (2) $\sin 17° = \frac{x}{y}$

$\cos 17° = \sqrt{1 - \sin^2 17°} = \sqrt{1 - \frac{x^2}{y^2}} = \sqrt{\frac{y^2 - x^2}{y^2}} = \frac{\sqrt{y^2 - x^2}}{y} = \sec 17° = \frac{y}{\sqrt{y^2 - x^2}}$

sin 73° = sin(90° – 17°) = cos 17°

∴ sec 17° – sin73° $= \frac{y}{\sqrt{y^2 - x^2}} - \frac{\sqrt{y^2 - x^2}}{y} = \frac{y^2 - y^2 + x^2}{y\sqrt{y^2 - x^2}} = \frac{x^2}{y\sqrt{y^2 - x^2}}$

69. (2) Slope of line passing through points (4, – 2) and (– 3, 5) $= \frac{5 + 2}{-3 - 4} = \frac{7}{-7} = -1$

Slope of two parallel lines is always equal.

∴ Slope of the line parallel to the line having slope –1 = –1

70. (4) Given, Investment of P = ₹28000
Duration of P = 8 months
Hence, Total investment amount of P = ₹28000 × 8
Investment of Q = ₹42000
Duration of Q = 12 months
Hence, Total investment amount of Q = ₹42000 × 12
Ratio of profits = Ratio of investments = 28000 × 8 : 42000 × 12 = 4 : 9
Given, Total profit = ₹21125

∴ Profit of A = $\frac{4}{13} \times 21125 = ₹6500$

71. (3) Total number of diabetic men in 2014 = $66000 \times \frac{35}{100} = 23100$

Total number of diabetic women in 2014 = $54000 \times \frac{25}{100} = 13500$

Total number of diabetic children in 2014 = $16000 \times \frac{12.5}{100} = 2000$

Required average = $\frac{23100 + 13500 + 2000}{3} \approx 12867$

72. (1) Required% = $\left(\frac{37.5}{62.5} \times 100\right)\% = 60\%$

73. (4) Required ratio = $\frac{60000 \times 20\%}{70000 \times 27.5\%} = \frac{6 \times 8}{7 \times 11} = 48 : 77$

74. (2) Number of diabetic women in 2013 = 20% of 60000 = 12000
Number of diabetic children in 2013 = 25% of 12000 = 3000
Number of diabetic men in 2013 = 32.5% of 63000 = 20475
$\therefore$ Required difference = 20475 – (12000 + 3000) = 20475 – 15000 = 5475

75. (1) Number of children not suffering from diabetes in 2011 and 2012
= 85% of 15000 + 90% of 21000
= 12750 + 18900 = 31650

MEANINGS IN ALPHABETICAL ORDER

Benediction	the utterance or bestowing of a blessing, especially at the end of a religious service	आर्शीवाद
Benevolence	the quality of being well meaning; kindness	भलाई
Besmirch	damage the reputation of (someone or something) in the opinion of others	गंदा करना
Commemorate	recall and show respect for (someone or something)	मनाना
Complicity	the state of being involved with others in an illegal activity or wrongdoing	सहापराध
Condemnation	the expression of very strong disapproval; censure	निंदा
Derision	contemptuous ridicule or mockery	उपहास
Dispassionate	not influenced by strong emotion, and so able to be rational and impartial	आवेगहीन
Enduring	continuing or long-lasting	टिकाऊ
Ethnology	the study of the characteristics of various peoples and the differences and relationships between them	मानव जाति विज्ञान
Fervent	having or displaying a passionate intensity	उत्सुक
Genealogy	a line of descent traced continuously from an ancestor	वंशावली
Impudent	not showing due respect for another person; impertinent	दिलेर
Manoeuvre	a movement or series of moves requiring skill and care	पैंतरेबाज़ी
Stratagem	a plan or scheme, especially one used to outwit an opponent or achieve an end	कपट
Subdued	(of a person or their manner) quiet and rather reflective or depressed	मातहत
Subterfuge	deceit used in order to achieve one's goal	छल
Trite	(of a remark, opinion, or idea) overused and consequently of little import; lacking originality or freshness	घिसे-पिटे
Vagueness	lack of certainty or distinctness	अस्पष्टता

SSC MOCK TEST - 406 (ANSWER KEY)

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

76. (2) If two events happen to be in past one after another, the first action is written in Past Perfect Tense. Change 'have' into 'had'.

77. (2) Replace 'so' by 'as'. 'As ..... as' is a correct phrase.

86. (4) The subject of the sentence, a highly improved variety is singular.

87. (1) 'Ask' is used to took for an answer, explanations, etc.