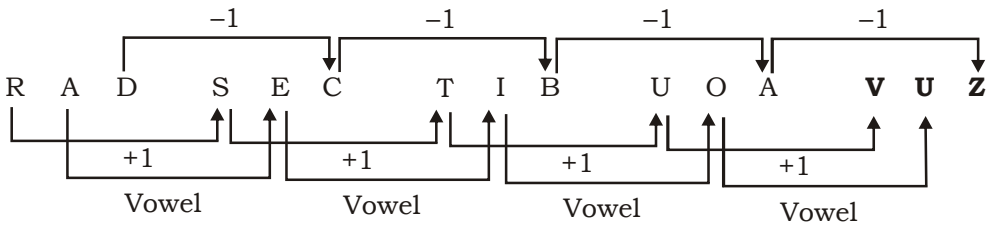
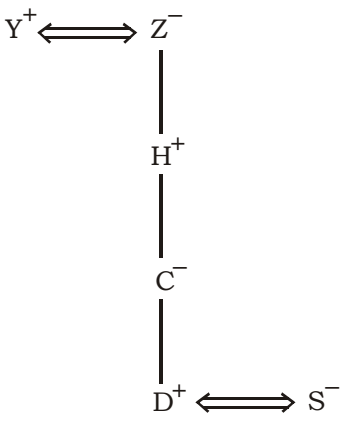
SSC MOCK TEST - 431 (SOLUTION)

1. (1) As, 25 ⇒ 25 × (2 + 5) = 175
   Similarly, 32 ⇒ 32 × (3 + 2) = 160
2. (4) Writer uses Pen to write, while Batsman uses Bat to play.
3. (3) Except Credible, other are negative word.
4. (3) Except Table Tennis, other are outdoor games.
5. (2) As, FAN ⇒ 6114 $\overset{\text{Reverse}}{\Longleftrightarrow}$ 4116
   And, MOUSE ⇒ 131521195 $\overset{\text{Reverse}}{\Longleftrightarrow}$ 591125131
   Similarly, LAPTOP ⇒ 12116201516 $\overset{\text{Reverse}}{\Longleftrightarrow}$ 61510261121
6. (1) $18 + 2^2 = 22$
   $22 + 3^2 = 31$
   $31 + 4^2 = 47$
   $47 + 5^2 = 72$
   $72 + 6^2 =$ **108**
7. (2)



8. (1)



   Hence, H is the son of Y.
9. (3) As, $125 + 2^3 = 133$
   $133 + 3^3 = 160$
   Similarly, $109 + 2^3 = 117$
   $117 + 3^3 = 144$
10. (3) dx**y**zr/d**x**yz**r**/**d**xy**z**r/dx**y**zr
11. (3)

12. (4) **In first column,**

$\sqrt{225} - \sqrt{169} = 2 \Rightarrow (2)^3 = 8$

In second column,

$\sqrt{361} - \sqrt{256} = 3 \Rightarrow (3)^3 = 27$

In third column,

$\sqrt{576} - \sqrt{225} = 9 \Rightarrow (9)^3 =$ **729**

13. (1) $56 \div 9 + 30 - 7 \times 5 = -7$

Change the numbers 9 and 7 to each other

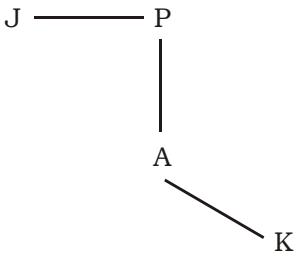
$56 \div 7 + 30 - 9 \times 5 = -7$

$8 + 30 - 45 = 7$

$38 - 45 = -7$

$-7 = -7$

14. (4)

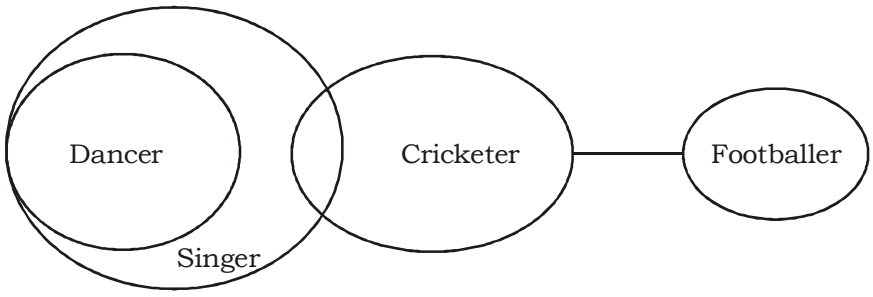


Hence, K is in the South-East of J.

15. (4) 1. Key → 3. Lock → 2. Door → 4. Room → 5. Swith on

16. (2) Required number = 22 + 15 + 7 + 5 = 49

17.(4)



I. False II. False III. False

Hence, no conclusion follows.

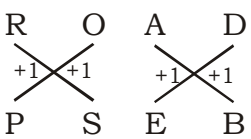
18. (2) 19. (3)

20. (3) Each day of the week is repeated after 7 days.

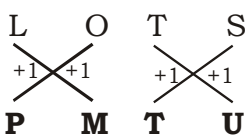
So, after 63 days, it will be sunday.

∴ After 65 days, it will be Tuesday.

21. (2) As,



Similarly,



22. (2) 23. (3) 24. (3) 25. (1)

26 (1) The Pradhan Mantri Jeevan Jyoti Bima Yojana offers coverage of ₹ 2 lakh to the nominee of the scheme, in the event of the unfortunate demise of the insured person. The coverage amount offered to the beneficiary has tax exemptions as per the Income Tax Law.

27. (1) Mercury is not an insulator. Insulators are material that does not conduct electricity.

28. (2) Kalpa is called the arms of the Veda Purusha. It is for the proper application of the Vedic texts. The texts are clear, short and practical for ceremonies. Vyakarana - It talks about the formation of the word.

29. (3) Dharmaraja Ratha is a monument in the Pancha Rathas complex at Mahabalipuram, on the Coromandel Coast of the Bay of Bengal, in the Kancheepuram district of the state of Tamil Nadu, India.

31. (4) Pritzker Prize, in full Pritzker Architecture Prize, international award given annually to recognize the contributions of a living architect. It has often been called the Nobel Prize of architecture.

32. (3) Dhuandhar falls is actually located on the Narmada river, one of the five holy rivers of India.

33. (3) The power of a lens is –2.0 D. Here 'D' stands for: Dioptre. It is the unit of measurement of the refractive power of an optical lens and curved mirror. A dioptre is equal to the reciprocal of focal length of the lens or mirror.

36. (3) Union Minister Rajeev Chandrasekhar inaugurated India's first FutureLABS center at Centre for Development of Advanced Computing (C-DAC) Thiruvananthapuram, focusing on semiconductor chip and strategic electronics.

37. (1) The cation is a positively charged ion. It has more protons than electrons. NH3 forms a bond with an H+ using the N lone pair.

38. (1) The most famous monasteries dot the landscape of the Sikkim are the Rumtek monastery in the capital city of Gangtok, Pemayangtse monastery in the city of Pelling in the West Sikkim, Tashiding monastery near the Yuksam city in the West Sikkim, Phodong Monastery near Gangtok, Enchey monastery in Gangtok, Ralang Monastery in Ravangla in South Sikkim, old Sanga-Choeling monastery located near the city of Pelling where you can reach by trekking along with many other monasteries worth visiting while on the Sikkim tour.

39. (4) Cytology, the study of cells as fundamental units of living things.

40. (4) Article 25 of the Constitution guarantees freedom of religion to all persons in India.

41. (1) On that occasion, Shivaji formalized the institution of a council of eight ministers to guide the administration of his nascent state. This council came to be known as the Ashta Pradhan.

42. (3) The Widal test is one method that may be used to help make a presumptive diagnosis of enteric fever, also known as typhoid fever.

43. (3) The East India Company, Corporate Violence, and the Pillage of an Empire: William Dalrymple: Bloomsbury Publishing.

44. (4) A budget deficit is a situation where the expenditure of the government exceeds the revenue generated by the government. A budget deficit reflects the financial health of a country.

45. (2) It causes chickenpox (varicella), a disease most commonly affecting children, teens, and young adults, and shingles (herpes zoster) in adults; shingles is rare in children.

47. (1) The Battle of Khanwa was fought near the village of Khanwa, in Bharatpur District of Rajasthan, on 16 March 1527. It was fought between the forces of the first Mughal Emperor Babur and the Rajput forces led by Rana Sanga of Mewar, after the Battle of Panipat.

49. (2) India successfully conducted the inaugural flight test of the Agni-5 nuclear ballistic missile on March 11, 2024, as part of the Make in India initiative by DRDO.

51. (1) Let the sum of age of Anil's son be x years.
Anil's age = 3x years
ATQ,
4(x – 4) – 6 = (3x – 2) years
4x – 16 – 6 = 3x – 2
x = 20 years
∴ Present age of Anil = 3 × 20 = 60 years

52. (3) Let the income of Sumit be ₹100.

Invested in share = $100 \times \frac{20}{100}$ = ₹20

Remaining amount = 100 – 20 = ₹80

Given to mother = $80 \times \frac{40}{100}$ = ₹32

Mother spent on household expenditure = $32 \times \frac{50}{100}$ = ₹16

Saving of mother = 32 – 16 = ₹16
ATQ,
₹16 → 5600

∴ ₹100 → $\frac{5600}{16} \times 100$ = ₹35000

Hence, monthly income of Sumit = ₹35000

53. (2) Quantity of pure salt in original mixture = $150 \times \frac{70}{100}$ = 105 gram

Quantity of pure juice after adding 30 gram juice = 105 + 30 = 135 gram

∴ Required% = $\left(\frac{135}{180} \times 100\right)\%$ = 75%

54. (4) $\frac{42 - 12 \times 3 + 8 \div 2 + 15}{8 \times 2 - 4 + 9 \div 3}$

$= \frac{42 - 12 \times 3 + 4 + 15}{8 \times 2 - 4 + 3}$

$= \frac{42 - 36 + 4 + 15}{16 - 4 + 3} = \frac{25}{15} = \frac{5}{3}$

55. (1) Let the length of train be x m.
ATQ,

$\frac{x}{14} = \frac{x + 260}{40}$

40x = 14x + 260 × 14
26x = 260 × 14

$x = \frac{260 \times 14}{26}$ = 140 m

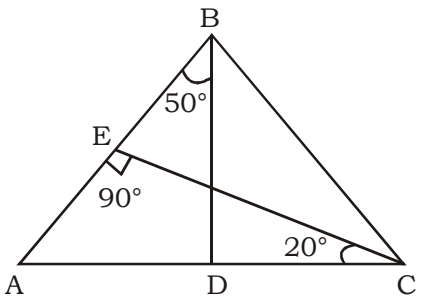
∴ Speed of train = $\frac{140}{14}$ = 10 m/s

56. (3) Total of 6 number = 136 × 6 = 816
Let the 6th number be x.
Sum of the first 5 number = 7x
ATQ,
7x + x = 816
8x = 816

$\therefore \quad x = \frac{816}{8} = 102$

57. (1) 1005x4 is divided by 8.
Put the value of x = 0
Now, 100504 is completely divisible by 8.
$\therefore$ Required integer = 0

58. (2)



In ΔCAE,

$\angle CAE = 180° - (90° + 20°)$

= 180° – 110° = 70°

In ΔABD,

$\angle BDA = 180° - (70° + 50°)$

= 180° – 120° = 60°

59. (4) $x = 3\cos A + 4\sin A$
$x^2 = 9\cos^2 A + 16\sin^2 A + 24\cos A \sin A$ .....(i)
$y = 3\sin A - 4\cos A$
$y^2 = 9\sin^2 A + 16\cos^2 A - 24\cos A \sin A$ .....(ii)
Adding equation (i) and (ii), we get
$x^2 + y^2 = 9\cos^2 A + 16\sin^2 A + 24\cos A \cdot \sin A + 9\sin^2 A + 16\cos^2 A - 24\cos A \cdot \sin A$
$x^2 + y^2 = 9(\cos^2 A + \sin^2 A) + 16(\cos^2 A + \sin^2 A)$
$x^2 + y^2 = 9 + 16$
$\therefore \quad x^2 + y^2 = 25$

60. (1) If $x^4 + x^2y^2 + y^4 = 21$ and $x^2 + xy + y^2 = 7$
Formula used:
$x^4 + x^2y^2 + y^4 = (x^2 - xy + y^2)(x^2 + xy + y^2)$
$21 = (x^2 - xy + y^2) \times 7$

$(x^2 - xy + y^2) = \frac{21}{7}$

$(x^2 - xy + y^2) = 3$ .....(i)
$x^2 + xy + y^2 = 7$ .....(ii)

Substracting equation (i) from equation (ii),

$2xy = 4$

$xy = 2$

$(xy)^2 = 4$

From equation (ii),

$x^2 + y^2 = 7 - 2$

$x^2 + y^2 = 5$

Now,

$$\left(\frac{1}{x^2}+\frac{1}{y^2}\right)$$

$$\frac{\left(x^2+y^2\right)}{\left(xy^2\right)}=\frac{5}{4}$$

61.(2) Let the number of clerks be x.

ATQ,

$(15000 \times 60) + (x \times 8000) = (x + 60) \times 12000$

$900000 + 8000x = 12000x + 720000$

$4000x = 180000$

$$x = \frac{180000}{4000} = 45$$

$\therefore$ Number of clerks = 45

62.(2) Portion of the tank filled in 5 minutes = $5\left(\frac{1}{20}+\frac{1}{30}+\frac{1}{40}\right)=\frac{13}{24}$

Portion of the tank filled by B and C in the next 6 minutes = $6\left(\frac{1}{30}+\frac{1}{40}\right)=\frac{7}{20}$

Portion of the tank which is yet to be filled = $1-\left(\frac{13}{24}+\frac{7}{20}\right)=\frac{13}{120}$

Time taken by C fill the tank taking into consideration the leak as well

$$= \frac{\frac{13}{120}}{\left(\frac{1}{40}-\frac{1}{60}\right)}=\frac{13}{120}\times 120 = 13 \text{ minutes}$$

$\therefore$ Total time taken = 5 + 6 + 13 = 24 minutes

63. (4) $(1!)^{99} + (2!)^{98} + (3!)^{97} + \ldots\ldots\ldots\ldots + (99!)^1$

$= 1^{99} + 2^{98} + 6^{97} + 24^{96} + 120^{95} + 720^{94} + \ldots\ldots\ldots\ldots$

$= 1 + 4 + 6 + 6 + 0 + 0 + \ldots\ldots\ldots$

= 7 (unit digit)

64. (4) Let the denominator be x.

Then, numerator = x + 3

ATQ,

$$\frac{x+3+5}{x-2}=\frac{8}{3}$$

$$\frac{x+8}{x-2}=\frac{8}{3}$$

$3x + 24 = 8x - 16$

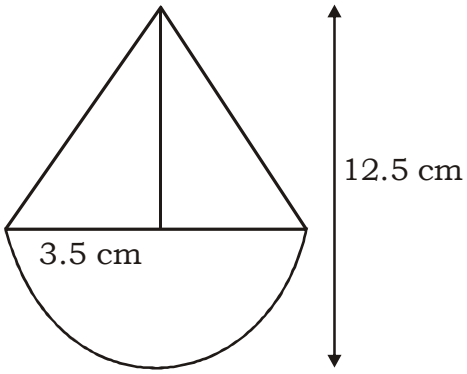
$5x = 40$

$$x = \frac{40}{5} = 8$$

Therefore, the original fraction is $\frac{11}{8}$.

Now, required fraction = $\frac{\frac{11}{8}}{\frac{11}{2}}=\frac{11}{8}\times\frac{2}{11}=\frac{1}{4}$

65. (4)



Volume of cone = $\frac{1}{3}\pi r^2 h$

Where, r = 3.5 cm

h = 12.5 – 3.5 = 9 cm

Now, Volume = $\frac{1}{3}\times\frac{22}{7}\times 3.5\times 3.5\times 9 = 115.5\ cm^3$

Volume of hemisphere = $\frac{1}{3}\pi r^3$

$=\frac{4}{3}\times\frac{22}{7}\times 3.5\times 3.5\times 3.5 = 179.66\ cm^3$

∴ Total volume of given figure = 115.50 + 179.66 = 295.16 cm^3

66. (2) $a + \frac{1}{a} = 5$

Squaring on both sides,

$$a^2 + \frac{1}{a^2} + 2\left(a \times \frac{1}{a}\right) = 25$$

$$a^2 + \frac{1}{a^2} = 23$$

$$a^2 + \frac{1}{a^2} - 2 = 23 - 2$$

$$\left(a - \frac{1}{a}\right)^2 = 21$$

$$\left(a - \frac{1}{a}\right) = \sqrt{21}$$

Using formulas :

$a^3 + b^3 = (a + b)^3 - 3ab(a + b)$

and

$a^3 - b^3 = (a - b)^3 + 3ab(a - b)$

$$a^3 + \frac{1}{a^3} = 110$$

$$a^3 - \frac{1}{a^3} = 21\sqrt{21} + 3\sqrt{21} = 24\sqrt{21}$$

Multiplying both the equations and adding 3.

$$\left(a^6 - \frac{1}{a^6}\right) + 3 = \left(a^3 + \frac{1}{a^3}\right)\left(a^3 - \frac{1}{a^3}\right) + 3$$

$$= 110 \times 24\sqrt{21} + 3$$

$$= 2640\sqrt{21} + 3$$

67. (3) $(x^6 - 1) = (x^2 - 1)(x^4 + x^2 + 1)$

$= (x - 1)(x + 1)(x^4 + x^2 + 1)$

And

$(x^4 + 2x^3 - 2x - 1)$

$= x^4 - x^3 + 3x^3 - 3x^2 + 3x^2 - 3x + x - 1$

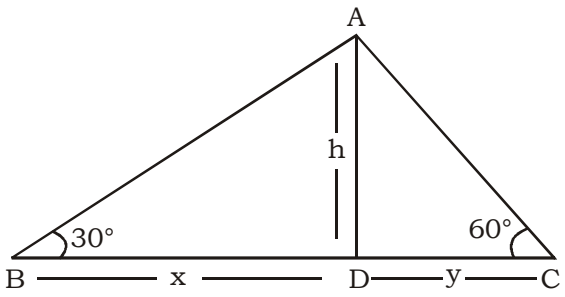
$= (x - 1)(x^3 + 3x^2 + 3x + 1)$

$= (x - 1)(x + 1)^3$

$= (x^2 - 1)(x + 1)^2$

So, HCF $= (x - 1)(x + 1) = x^2 - 1$

68. (2)



Let the height of pole be = h

In Δ ABD,

$$\tan 30° = \frac{AD}{BD}$$

$$\frac{1}{\sqrt{3}} = \frac{h}{x}$$

$$x = h\sqrt{3} \qquad \text{.....(i)}$$

In Δ ACD,

$$\tan 60° = \frac{h}{y}$$

$$\sqrt{3} = \frac{h}{y}$$

$$y = \frac{h}{\sqrt{3}} \qquad \text{.....(ii)}$$

Adding equation (i) and (ii),

$$x + y = 84\sqrt{3}$$

$$h\sqrt{3} + \frac{h}{\sqrt{3}} = 84\sqrt{3}$$

$3h + h = 84 \times 3$

$\therefore$ $h = 63$ m

69. (3) Slope of the given line = $\frac{(7-3)}{(5-2)} = \frac{4}{3}$

So, the slope of the required line is also $\frac{4}{3}$.

One point on this line is $(-4, 0)$

Hence the equation of the line = $y - 0 = \frac{4}{3}(x + 4)$

$3y = 4x + 16$

70. (3) Let, the sum or principal = ₹P

Given,

CI = ₹420, n = 2 years, r_1 = 10% and r_2 = 15%

$$A = P\left(1+\frac{r_1}{100}\right)\left(1+\frac{r_2}{100}\right)$$

$$A = P\left(1+\frac{10}{100}\right)\left(1+\frac{15}{100}\right)$$

$$A = P\left(\frac{11}{10}\right)\left(\frac{23}{20}\right)$$

$$A = P\left(\frac{253}{200}\right) \quad \text{....(i)}$$

Also,

CI = A – P

$$4240 = P\left(\frac{253}{200}\right) - P$$

$$4240 = P\left(\frac{53}{200}\right)$$

∴ P = ₹16000

71. (1) 7.6 – (8.4 ÷ 1.4 × 6) + 10 × 4 ÷ 1

= 7.6 – (6 × 6) + 40

= 7.6 – 36 + 40 = 7.6 + 4 = 11.6

72. (3) Initially milk in P = 40 litres

water in Q = 22 litres

After Ist operation,

Milk in P = 40 – 8 = 32 litres

Water in Q = 22 litres

Milk in Q = 8 litres

Mixture in container Q = 22 + 8 = 30 liters

After 2 operation $\frac{22}{5}$ liters of water is taken out

Milk in container P = $32 + \frac{8}{5} = \frac{168}{5}$

Water in container Q = $22 - \frac{22}{5} = \frac{885}{5}$

∴ Required Ratio = $\frac{168}{5} : \frac{88}{5}$ = 21 : 11

73. (1) Total number of employees of KD Defence in the year 2010, 2012 and 2014
= (4.8 + 5.2 + 7.2) × 100 = 1720
Total number of employees joining KD tech over all the year together
= (0.75 + 1.2 + 1.8 + 1.65 + 4.25 + 5.2) × 100 = 1485

$\therefore$ Required % = $\left(\frac{1720}{1485}\times 100\right)\%$ = 115.82% ≈ 116%

74. (2) Total number of students = 300 + 350 + 275 + 400 + 275 + 250 + 400 + 325 + 375 + 250 + 400 + 450 + 250 + 300 + 500 = 5100
Total number of students in commerce = 250 + 400 + 325 + 375 + 250 = 1600

Required% = $\left(\frac{1600}{5100}\times 100\right)\% = 31.37\%$

75. (3) Number of computer manufactured in the year2017 = $190 \times \frac{110}{100}$ = 209

Percentage of computer sold in 2017 = $90 \times \frac{80}{100}$ = 72%

Number of unsold computer in 2017 = $209 \times \frac{28}{100}$ = 58.52 ≈ 59

MEANINGS IN ALPHABETICAL ORDER

Assorted	of various sorts put together; miscellaneous	मिश्रित
Dirge	a lament for the dead, especially one forming part of a funeral rite	शोकगीत
Disparate	essentially different in kind; not allowing comparison	मुक्तलिफ
Docile	ready to accept control or instruction; submissive	विनम्र
Effete	(of a person) affected, overrefined, and ineffectual	अशक्त
Epicure	a person who takes particular pleasure in fine food and drink	रसिया
Felony	a crime, typically one involving violence	घोर अपराध
Grime	dirt ingrained on the surface of something	जमी हुई कीट
Homogenous	of the same kind; alike	सजातीय
Incursion	an invasion or attack, especially a sudden or brief one	चढ़ाई
Infallible	incapable of making mistakes or being wrong	अचूक
Irrevocable	not able to be changed, reversed, or recovered; final	स्थिर
Kaleidoscopic	having complex patterns of colors; multicolored	जल्दी जल्दी बदलता हुआ
Motley	incongruously varied in appearance or character; disparate	पंचमेल
Retreat	(of an army) withdraw from enemy forces as a result of their superior power or after a defeat	पीछे हटना
Rotund	(of a person) plump	गोल
Spine	the backbone	रीढ़ की हड्डी
Supple	bending and moving easily and gracefully; flexible	कोमल
Venial	denoting a sin that is not regarded as depriving the soul of divine grace	क्षम्य
Vertebrae	each of the series of small bones forming the backbone	कशेरुका
Violation	the action of violating someone or something	उल्लंघन

SSC MOCK TEST - 431 (ANSWER KEY)

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

76. (3) If two subjects are joined by 'neither ... nor', the verb agrees with the nearest subject i.e., 'knowledge' in the given sentence. Replace 'were' by 'was'.

77. (1) Remove article i.e, 'The' before South Asia.

84. (3) The correct spelling is Apprentice.

85. (1) The correct spelling of Mischevous is Mischievous.

89. (2) 'More than one' is singular in nature. It will take singular verb, noun, adjective etc.