

**SSC MOCK TEST - 421 (SOLUTION)**

1. (3) A 'Pulmonologist' is a doctor who diagnoses and treats diseases of the 'Lungs' and 'Endocrinologist' is a doctor who treats diseases of the 'Glands'.

2. (2) As,

$$\begin{array}{c} \boxed{\phantom{P}} \quad \boxed{\phantom{S}} \\ \downarrow \qquad \uparrow \\ P \quad S \Rightarrow 19^2 - 16^2 = 105 \end{array}$$

Similarly,

$$\begin{array}{c} \boxed{\phantom{J}} \quad \boxed{\phantom{T}} \\ \downarrow \qquad \uparrow \\ J \quad T \Rightarrow 20^2 - 10^2 = 300 \end{array}$$

3. (4) (1) A  $\xrightarrow{+2}$  C  $\xrightarrow{\text{Reverse}}$  X

(2) R  $\xrightarrow{+2}$  T  $\xrightarrow{\text{Reverse}}$  G

(3) D  $\xrightarrow{+2}$  F  $\xrightarrow{\text{Reverse}}$  U

(4) L  $\xrightarrow{+3}$  N  $\xrightarrow{\text{Not Reverse}}$  P

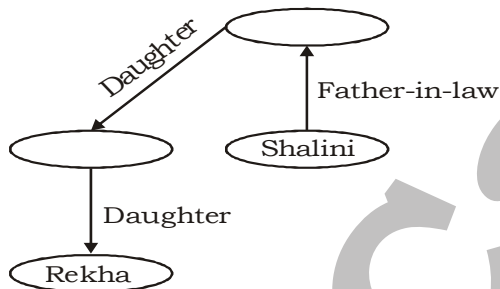
4. (3) Except Ounce, others are currencies, while Ounce is a unit of weight.

5. (1) As,  $9 \times 2 + 6 = 24$

And,  $24 \times 2 + 17 = 65$

Similarly,  $8 \times 2 + 6 = 22$

6. (4)



Hence, Rekha is Niece of Shalini.

7. (4)  $78 \quad 79 \quad 83 \quad 92 \quad 108 \quad 133$   
 $\xrightarrow{+1^2} \xrightarrow{+2^2} \xrightarrow{+3^2} \xrightarrow{+4^2} \xrightarrow{+5^2}$

8. (1)  $R \xrightarrow{+1} S \xrightarrow{+1} T \xrightarrow{+1} U \xrightarrow{+1} V$   
 $B \xrightarrow{+0} B \xrightarrow{+0} B \xrightarrow{+0} B \xrightarrow{+0} B$   
 $C \xrightarrow{+1} D \xrightarrow{+1} E \xrightarrow{+1} F \xrightarrow{+1} G$

9. (2) As,

$$\begin{array}{c} 14, \quad 169, \quad 225 \\ \downarrow \quad \uparrow \quad \uparrow \\ 14 \xrightarrow{-1} (13)^2 \xrightarrow{+2} (15)^2 \end{array}$$

Similarly

$$\begin{array}{c} 19, \quad 324, \quad 400 \\ \downarrow \quad \uparrow \quad \uparrow \\ 19 \xrightarrow{-1} (18)^2 \xrightarrow{+2} (20)^2 \end{array}$$

10. (3) A : B : C

Let Income  $\rightarrow$   $12x : 9x : 7x$

Expenditure  $\rightarrow$   $15y : 9y : 8y$

According to question,

$$12x \times \frac{75}{100} = 15y \text{ (Because A saves 25\% of Income)}$$

$$3x = 5y$$

$$\frac{x}{y} = \frac{5}{3}$$

Now New Ratio will be

	A	:	B	:	C
Income →	$12 \times 5$	:	$9 \times 5$	:	$7 \times 5$
	60	:	45	:	35
Expenditure →	$15 \times 3$	:	$9 \times 3$	:	$8 \times 3$
	45	:	27	:	24
Saving →	15	:	18	:	11
	15	:	18	:	11

11. (2)

12. (4)  $16 + 36 + 38 = 90$

$$49 + 25 + 16 = 90$$

$$64 + 6 + \mathbf{20} = 90$$

13. (2)  $52 * 32 * 64 * 18 * 1 * 9$

Put the sign,

$$52 \times 32 \div 64 = 18 - 1 + 9$$

$$52 \times \frac{32}{64} = 27 - 1$$

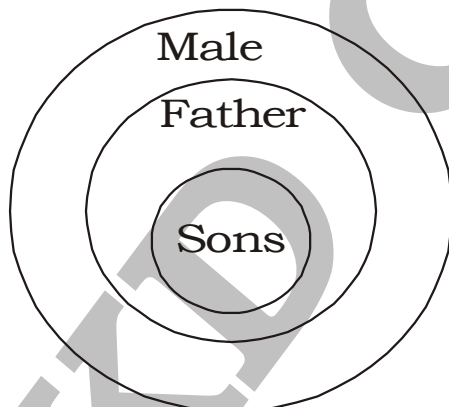
$$26 = 26$$

14. (1) 5. Callous → 3. Cardiac → 1. Cardinal → 6. Careless → 4. Carrot → 2. Cartography

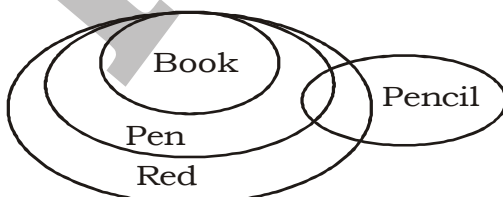
15. (1) Code is the number of letters in the given word.

16. (3) I P C L D / I P C M D / I P C N D / I P C O D

17. (2)



18. (2)

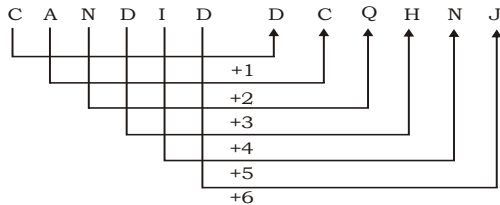


I. True                      II. True

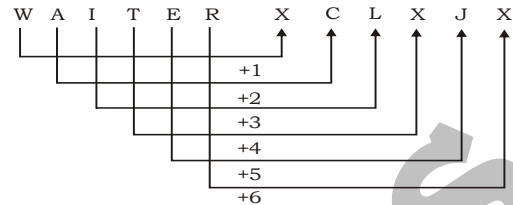
Hence, both the conclusions follow.

19. (3)

20. (4) As,



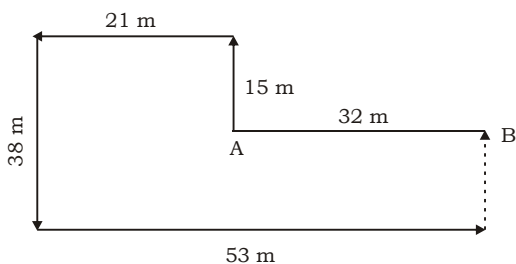
Similarly,



21. (1)

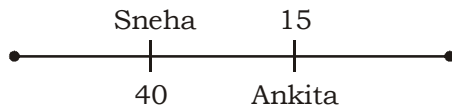
22. (2)

23. (2)



Hence, from the above diagram he should walk  $(38 - 15) = 23$  m to the left.

24. (1)



Required value of  $n = 40 + 15 + 25 = 80$

25. (3)

27. (2)

After a general election and formation of a new government, a list of senior Lok Sabha members prepared by the Legislative Section is submitted to the Minister of Parliamentary Affairs, who selects a pro tem speaker.

28. (3)

Indian Mutiny began in Meerut on 10 May 1857 and ended in Gwalior on 20 June 1858 by Indian troops (sepoys) in the service of the British East India Company. Indian Mutiny, also called Sepoy Mutiny or First War of Independence, widespread but unsuccessful rebellion against British rule in India from 1857-59.

29. (1)

The lowest temperature at which a substance catches fire is called its ignition temperature.

30. (3)

Ved Prakash Nanda, who received the Padma Bhushan award on 20 March 2018 in the field of literature and education, passed away on January 1, 2024. He was an esteemed professor of International Law at the University of Denver, Colorado, indicating that his primary academic expertise was in International Law.

31. (3)

The new symbol is an amalgamation of Devanagari 'Ra' and the Roman 'R' without the stem. The new symbol designed by D Udaya Kumar, a post-graduate of IIT Bombay was finally selected by the Union Cabinet on 15th July 2010.

32. (4)

Gotamiputa Satakarni was a ruler of the Satavahana Empire in present-day Deccan region of India.

33. (3)

Dr. Arvind Panagariya has been appointed as the new Chairman of the Finance Commission of India. The Finance Commission is a constitutional body that gives recommendations on center-state financial relations.

34. (3)

Prime Minister Narendra Modi on Saturday launched the country's first seaplane service between the Statue of Unity near Kevadiya in Gujarat's Narmada district and Sabarmati Riverfront in Ahmedabad.

35. (4) Dalkhai: Mainly dalkhai is named after a goddess "dalkhai Devi". Though Dusserah is the occasion of Sambalpuri folk dance Dalkhai, it's the most popular folk-dance of Odisha, its performance is very common on all other festivals such as Bhajijuntia, Phagun Puni, Nuakhai, etc.
36. (4) Potassium permanganate has a molar mass of 158.04 g/mol. This figure is obtained by adding the individual molar masses of four oxygen atoms, one manganese atom and one potassium atom, all available on the Periodic Table of the Elements (see the "Additional Resources" section).
38. (1) General Dong Jun has been appointed as China's new defence minister, replacing General Li Shangfu who mysteriously disappeared from public view four months ago without any explanation.
42. (2) Jaundice is a yellow color of the skin and eyes that results from excess bilirubin deposited in the skin, and dark urine results from excess bilirubin excreted by the kidneys.
43. (2) A law was sought to limit such frequent defections in India. In 1985, the Tenth Schedule of the 52nd amendment to the Constitution of India was passed by the Parliament of India to achieve this.
44. (1) The Battle of Khanwa was fought near the village of Khanwa, in Bharatpur District of Rajasthan, on March 16, 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.
45. (3) Uttar Pradesh has retained top rank for the third straight year in ensuring extensive usage of the Supreme Court e-committee's Inter-Operable Criminal Justice System (ICJS), a nationwide platform integrating courts, police, prisons and forensic labs.
47. (1) The eardrum is like a stretched rubber shee
48. (2) Ostrich, Emu, Kiwi all are flightless birds.
49. (4) Akbar declared or issued Mahzarnama to take all the religious matters into his own hands. This made him supreme in the religious matters. He issued Mahzarnama to curb the dominance of Ulema. It was written by Faizi in 1579.

51. (1)  $2x + \frac{2}{x} = 4$

$$x + \frac{1}{x} = 2$$

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

$$2^3 = x^3 + \frac{1}{x^3} + 3 \times 2$$

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

$$\therefore x^3 + \frac{1}{x^3} + 2 = 2 + 2 = 4$$

52. (2) Let CP = ₹ 100

$$SP = 100 \times \frac{130}{100} = ₹ 130$$

Now, CP = ₹ 50

SP = ₹ 130

$$\therefore \text{Profit}\% = \left(\frac{80}{50} \times 100\right)\% = 160\%$$

53. (3) Given 10-digit number  $6220x558y2$  is divisible by 88.

Hence it should be divisible by  $88 = 8 \times 11$

**Divisibility of 8:** Last three digits must be divisible by 8

Hence,  $8y2$  must be divisible by 8

So,  $y = 3$ , i.e. 832

**Divisibility of 11:** The difference of the sum of the alternate numbers is divisible by 11.

Sum of odd places =  $6 + 2 + x + 5 + 3 = 16 + x$

Sum of even places =  $2 + 0 + 5 + 8 + 2 = 17$

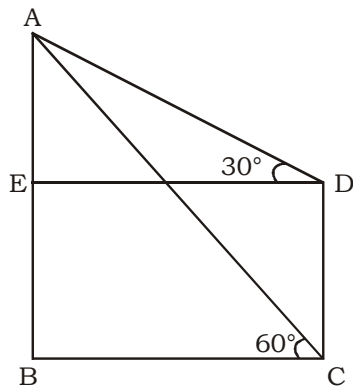
Difference =  $(16 + x) - 17$

$x = 1$

As 0 is divisible by 11.

$\therefore 4x + 3y = 4 \times 1 + 3 \times 3 = 13$

54. (2)



In  $\triangle ABC$ ,

$$\tan 60^\circ = \frac{AB}{BC}$$

$$\sqrt{3} = \frac{400}{BC}$$

$$BC = \frac{400}{\sqrt{3}} \quad \dots\dots(i)$$

In  $\triangle AED$ ,

$$\tan 30^\circ = \frac{AE}{ED}$$

$$\frac{1}{\sqrt{3}} = \frac{AE}{\frac{400}{\sqrt{3}}} \quad (\because BC = ED)$$

$$AE = \frac{400}{3} \text{ m} \quad \dots\dots(ii)$$

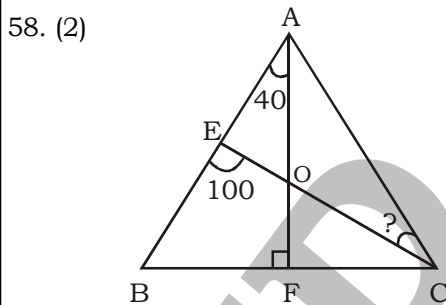
$\therefore CD = AB - AE \quad (\because BE = CD)$

$$= 400 - \frac{400}{3} = \frac{800}{3} \text{ m}$$

55. (2)  $12 + 20 \times 4 \div (36 \div 9 \times 5) + 17 \text{ of } 13 + 4$   
 $= 12 + 20 \times 4 \div (20) + 221 + 4$   
 $= 12 + 20 \times 4 \div 20 + 225$   
 $= 12 + 20 \times \frac{1}{5} + 225$   
 $= 12 + 4 + 225 = 241$

56. (3)  $\frac{\cos 29^\circ \operatorname{cosec} 61^\circ \tan 45^\circ + 2 \sin 35^\circ \sec 55^\circ}{3 \sin^2 42^\circ + 3 \sin^2 48^\circ}$   
 $= \frac{\cos (90^\circ - 61^\circ) \operatorname{cosec} 61^\circ \tan 45^\circ + 2 \sin (90^\circ - 55^\circ) \sec 55^\circ}{3 \sin^2 (90^\circ - 48^\circ) + 3 \sin^2 48^\circ}$   
 $= \frac{\sin 61^\circ \operatorname{cosec} 61^\circ \tan 45^\circ + 2 \cos 55^\circ \sec 55^\circ}{3 \cos^2 48^\circ + 3 \sin^2 48^\circ}$   
 $= \frac{1 \operatorname{cosec} 61^\circ \operatorname{cosec} 61^\circ \tan 45^\circ + 2 \frac{1}{\sec 55^\circ} \sec 55^\circ}{3(\cos^2 48^\circ + \sin^2 48^\circ)}$   
 $= \frac{1+2}{3} = \frac{3}{3} = 1$

57. (4) Average speed of three equal distance =  $\frac{(3 \times S_1 \times S_2 \times S_3)}{(S_1 \times S_2 \times S_2 \times S_3 + S_1 \times S_3)}$   
 $= \frac{3 \times 25 \times 30 \times 40}{25 \times 30 + 30 \times 40 + 25 \times 40} = \frac{90000}{2950} = 30.50 \text{ km/hr}$



In  $\triangle ABF$ ,

$$\angle ABF + \angle AFB + \angle BAF = 180^\circ$$

$$\angle ABF = 180^\circ - 40^\circ - 90^\circ = 50^\circ$$

Now, in  $\square BEFO$ ,

$$\angle EBF + \angle BFO + \angle FOE + \angle OEB = 360^\circ$$

$$\angle EOF = 360^\circ - 100^\circ - 90^\circ - 50^\circ = 120^\circ$$

Because, lines EC and AF intersect each other.

So,

$$\angle AOC = \angle EOF$$

$$\angle AOC = 120^\circ$$

Now, as given,  $OA = OC$

So,  $\angle OAC = \angle ACO$  (Let  $x$ )

Now, in  $\triangle OAC$ ,

$$\angle AOC + \angle OCA + \angle OAC = 180^\circ$$

$$120^\circ + 2x = 180^\circ$$

$$x = 30^\circ$$

$$\therefore \angle ACE = x = 30^\circ$$

59. (1) Let the number of boys = 100

Number of girls = 40

$$\therefore \text{Average age of class} = \frac{100 \times 24 + 40 \times 24 \times \frac{75}{100}}{140} = \frac{2400 + 720}{140} = \frac{3120}{140} = 22\frac{2}{7} \text{ years}$$

60. (4) A can do a work =  $\frac{15}{50} \times 100 = 30$  days

B can do a work =  $\frac{9}{20} \times 100 = 45$  days

Let the total work = 90 units

$$(A + B)\text{'s 1 day work} = \left(\frac{90}{30} + \frac{90}{45}\right) = 5 \text{ units}$$

$$\therefore \text{They can do 80\% work} = \frac{90}{5} \times \frac{80}{100} = 14.4 \text{ days}$$

61. (4)  $P = ₹ 4800$

$A = ₹ 5520$

$T = 3$  years

$$SI = 5520 - 4800 = ₹ 720$$

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

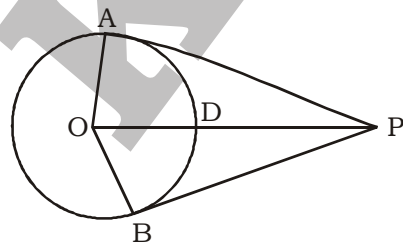
Now,  $A = ₹ 12000$

$R = 5\%$

$T = 5$  years

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

62. (2)



$$OA = OB = r$$

$$OP = 2r$$

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

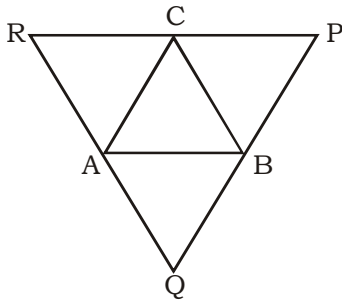
$$\sin \angle APO = \frac{OA}{OP} = \frac{r}{2r} = \frac{1}{2}$$

$$\sin \angle APO = \sin 30^\circ$$

$$\angle APO = 30^\circ$$

$$\therefore \angle APB = 60^\circ$$

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.

$$BC = AR$$

$$AQ = AR$$

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

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

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

64. (2)

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

$$= \left( x \frac{3}{5} \right)^{\frac{1}{5} \cdot \frac{5}{3} \cdot 5} = x \frac{3}{5} \cdot \frac{5}{3} = x$$

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.

$$\therefore \text{Required sum} = 28 + 35 = 69$$



66. (4) Original rate = ₹ x per lemon

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

ATQ,

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

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

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

$$x = 2$$

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

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

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

$$\text{Volume of the cylindrical ditch} = \text{Volume of each dug out} = \pi r^2 h = \pi \times 8^2 \times 4 = 256 \pi \text{ m}^3$$

So, extraction of hemispherical ditch by the earth dug out from the cylindrical ditch

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

68. (2)  $\sin 17^\circ = \frac{x}{y}$

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

$$\sin 73^\circ = \sin(90^\circ - 17^\circ) = \cos 17^\circ$$

$$\therefore \sec 17^\circ - \sin 73^\circ = \frac{y}{\sqrt{y^2 - x^2}} - \frac{\sqrt{y^2 - x^2}}{y} = \frac{y^2 - y^2 + x^2}{y \sqrt{y^2 - x^2}} = \frac{x^2}{y \sqrt{y^2 - x^2}}$$

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.

$\therefore$  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

$$\therefore \text{Profit of P} = \frac{4}{13} \times 21125 = ₹ 6500$$

71. (3)  $\left(\frac{1}{20} + \frac{1}{30} - \frac{1}{t}\right) \times 60 = -1$

'-1' is taken because the work is negative. T is the time taken by the waste pipe to empty the tank alone. We will  $t = 10$

So, capacity = 10 × 8 = 80 litres

72. (1) Let the two parts be ₹  $x$  and ₹  $(1301 - x)$

$$x \left(1 + \frac{4}{100}\right)^7 = (1301 - x) \times \left(1 + \frac{4}{100}\right)^9$$

$$\frac{x}{(1301 - x)} = \left(1 + \frac{4}{100}\right)^2$$

$$625x = 676(1301 - x)$$

$$1301x = 676 \times 1301$$

$$x = ₹ 676$$

So, the two parts are ₹ 676 and  $(1301 - 676) = ₹ 625$

73. (4) Number of fresh items = 15600 - 1200 = 14400

$$\text{Required more number} = 14400 \times \frac{5}{100} = 720$$

74. (3) No. of qualified candidates in the year 1995 =  $900 \times \frac{64}{100} = 576$

No. of male candidates who qualified in the year 1995 = 576 - 176 = 400

$$\therefore \text{Required ratio} = 400 : 176 = 25 : 11$$

75. (3) Required% =  $\left[\frac{600}{700 + 400 + 1200 + 1200 + 600 + 900 + 900} \times 100\right]\%$

$$= \left(\frac{600}{5900} \times 100\right)\% = 10.16\% \approx 11\%$$

## MEANINGS IN ALPHABETICAL ORDER

Animosity	strong hostility	बैर
Ballad	a poem or song narrating a story in short stanzas	गाथागीत
Borough	a town or district which is an administrative unit	नगर
Bough	a main branch of a tree	शाखा
Camaraderie	mutual trust and friendship among people who spend a lot of time together	सौहार्द
Contemporary	living or occurring at the same time	समकालीन
Devour	eat (food or prey) hungrily or quickly	लालच से खाना
Dirge	a lament for the dead, especially one forming part of a funeral rite	शोकगीत
Ferocity	the state or quality of being ferocious	क्रूरता
Imposition	the action or process of imposing something or of being imposed	आरोपण
Inundation	an overwhelming abundance of people or things	सैलाब
Masquerade	a false show or pretense	बहाना
Ode	a lyric poem in the form of an address to a particular subject, often elevated in style or manner and written in varied or irregular meter	स्रोत
Perseverance	persistence in doing something despite difficulty or delay in achieving success	दृढ़ता
Pristine	in its original condition; unspoiled	प्राचीन

**SSC MOCK TEST - 421 (ANSWER KEY)**

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

76. (2) 'Each of the' takes a plural verb after it, but it represents a singular subjects and thus takes a singular verb or singular pronoun. Change 'their' into 'his'.
77. (2) Change 'him' into 'he'. 'It' is used as a subject to emphasize a noun or a pronoun of nominative case.
87. (4) 'Once for all' is the correct phrase meaning 'completely and finally'.
90. (1) The correct spelling is 'Masquerade'.
91. (3) The correct spelling is 'Perseverance'.