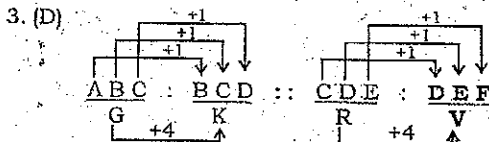


SSC Solution (18-MAY-17)

1. (B)
$$\begin{array}{cccc} P & U & R & I \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 16 & +21 & +18 & +9 = 64 \\ \hline & & & 64 \\ \Rightarrow & & & \frac{64}{4 \text{ letters}} = 16 \end{array}$$

Similarly,
$$\begin{array}{cccc} H & O & T & E & L \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 8 & +15 & +20 & +5 & +12 = 60 \\ \hline & & & & 60 \\ \Rightarrow & & & & \frac{60}{5 \text{ letters}} = 12 \end{array}$$

2. (C) First is the classical dance of second.



4. (B) Chair is made of wood. Similarly, Mesh is made from wire.

5. (D) In other options, money is deposited whereas in salary money is paid.

6. (D) Long jump is played individually, whereas other games are played between two players.



8. (D) Except $11\frac{2}{9}$, others have 100 as a numerator.

$$\frac{9}{11} = \frac{100}{11}, \frac{7}{13} = \frac{100}{13}, \frac{5}{17} = \frac{100}{17}$$

But, $11\frac{2}{9} = \frac{101}{9}$

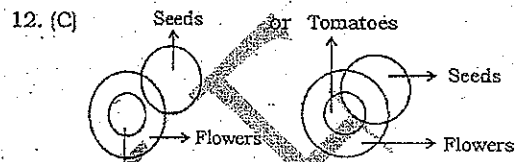
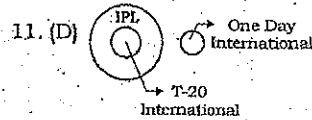
9. (C) Lends: Leopard, Lie, Life, Loan, Long
1 6 5 4 3 2

10. (B) Radhe : Mohan = x : 10x
Today = x + 10x + 10 yrs = 43 yrs.
5 yrs of each

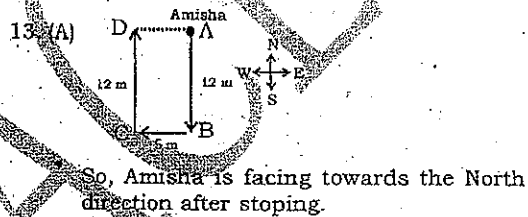
ATQ,
 $11x = 33$ or $x = 3$ and $10x = 30$
Radhe : Mohan = 3 : 30 (5 yrs ago.)

$$\begin{array}{cc} +15 & +15 \\ \downarrow & \downarrow \\ 18 \text{ yrs} & 45 \text{ yrs} \end{array}$$
 after 10 yrs from today (Total 13 yrs)

∴ Required difference = 45 - 18 = 27 yrs

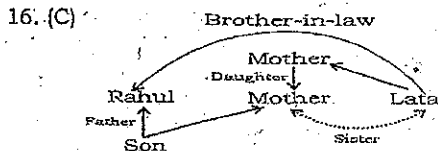


1. * 2. *
Neither Conclusion (1) nor (2) follows.



15. (B)

$$\begin{array}{cccc} 2 \times 3 & 3 \times 5 & 5 \times 7 & 7 \times 11 \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 6 & 15 & 35 & 77 \\ \hline 11 \times 13 & 13 \times 17 & 17 \times 19 & 19 \times 23 \\ \downarrow & \downarrow & \downarrow & \downarrow \\ 143 & 221 & 323 & 437 \end{array}$$



So, Rahul is Lata's Brother-in-law.

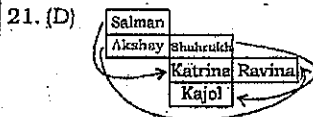
17. (C) ppp/qppq/ ppp/qppq/ppp

18. (C) $\frac{24+18}{3} = 14; \frac{74+38}{8} = 14;$

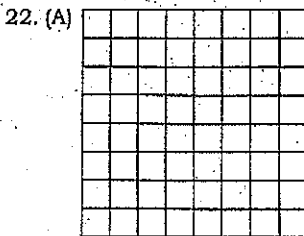
$\frac{64+62}{9} = 14$

19. (B) $14 \times 4 = 56$ $16 \times 5 = 80$ $29 \times 7 = 203$
 $2 + 2 = 4$ $3 + 2 = 5$ $1 + 6 = 7$

20. (B) $\sqrt{169} + \sqrt{64} + \sqrt{81} = 13 + 8 + 9 = 30$
 $\sqrt{625} + \sqrt{324} + \sqrt{49} = 25 + 18 + 7 = 50$
 $\sqrt{1296} + \sqrt{576} + \sqrt{100} = 36 + 24 + 10 = 70$

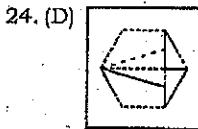


So, Salman will appear opposite to Katrina.



Number of squares in a chess board
 $= 1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 8^2$
 $= 1 + 4 + 9 + 16 + 25 + 36 + 49 + 64 = 204$

23. (C)



25. (D) 59, 11, 88
P I N K

26. (D) The words Satyam and Jayate came from Mundaka Upanishad, meaning Truth Alone Triumphs. The Mundaka Upanishad is an ancient Sanskrit Vedic text, embedded inside Atharva Veda. It is a Mukhya (primary) Upanishad, and is listed at number 5 in the MuktiKa canon of 108 Upanishads of Hinduism. It is among the most widely translated Upanishads.

27. (A) Process of soil erosion:- splash erosion, sheet erosion, rill erosion, and gully erosion.
- In **splash erosion**, the impact of a falling raindrop creates a small crater in the soil, ejecting soil particles.
 - If the soil is saturated, or if the rainfall rate is greater than the rate at which water can infiltrate into the soil, surface runoff occurs. **Sheet erosion** is the transport of loosened soil particles by overland flow.
 - **Rill erosion** refers to the development of small, ephemeral concentrated flow paths which function as both sediment source

and sediment delivery systems for erosion on hillslopes.

- **Gully erosion** occurs when runoff water accumulates and rapidly flows in narrow channels during or immediately after heavy rains or melting snow, removing soil to a considerable depth.

28. (B) Directive Principles of State Policy (DPSFs) aim to create social and economic conditions under which the citizens can lead a good life. They also aim to establish social and economic democracy through a welfare state. The Directive Principles of State Policy is guidelines/principles given to the central and state governments of India to be kept in mind while framing laws and policies.

29. (A) From the economic point of view equilibrium is the marginal utility derived from the goods consumed and money paid. The consumers would be in equilibrium if the satisfaction derived from each commodity is equal to each other.

31. (D) Nichrome is a non-magnetic alloy of nickel, chromium, and iron, usually used as a resistance wire. A common alloy is 80% nickel and 20% chromium, by mass. This alloy provides nichrome properties like hardness and ductility.

33. (B) Hopman cup is a hard-court tennis tournament held every year in Australia. Teams from different countries participate in the tournament. France was the winner for year 2017.

34. (A) The world's first-ever digital ambassador has been created by Denmark that will work on building ties with the global tech giants like Google, Apple, IBM and Microsoft. The new appointment will be a tech liaison and reflect a diplomatic power shift between the established nations and privately-owned unions.

35. (D) Party funding in Austria has been subject to public regulation and public subsidies since 1975. Party finance in Germany is the subject of statutory reports, in which up to 35 parties file annually with the administration of the German Parliament.

36. (A) Amir Khusrau (1253 -1325 CE), a Persian poet was associated with the rulers of Delhi Sultanate. He composed poetry in Arabic and Persian besides being the first writer to use Urdu as a medium of poetic expression.

37. (D) Singapore is located near the Equator. It has a tropical climate, where it is hot and wet throughout the year. Latitude of Singapore is 1° 22' North of the Equator.

39. (D) Per capita real income is nothing but NNP at factor cost. It means national income is sum total of all factor incomes adjusted for increase in prices.

40. (D) When light enters from rarer (air) to denser (glass) medium wavelength and velocity will get affected. The velocity will decrease. Moreover, as the ray bent in passing through different media, it results in decrease of wavelength. As such there is no change in frequency when light enters from air to glass.
41. (B) Compressed natural gas (CNG) is made by compressing natural gas which is composed of Methane (CH_4), it also contain small amount of ethane.
Coal gas typically contains Hydrogen, Methane and Carbon Monoxide.
LPG is the abbreviation or short form of Liquefied Petroleum gas. The major constituent of LPG is Propane and Butane. Water gas is a synthesis gas, containing Carbon Monoxide and Hydrogen.
43. (B) Ciris Mittenaere, a dental student from France, has been crowned the new Miss Universe 2016 at the annual pageant at the Mall of Asia Arena in Metro Manila, Philippines on January 30th, 2017. She is the 2nd Miss Universe from France after Christiane Martel, who was crowned Miss Universe in 1953.
44. (D) Morley-Minto reforms - 1909
Simon Commission-1927
Chauri-Chaura Incident-1922;
Dandi March-1930.
45. (B) Nanda Devi peaks are a part of Kumaon Himalayas located in Chamoli district of Uttarakhand. Nanda Devi is the second highest mountain in India, and the highest one located within the country. (Kangchenjunga, which is higher, is on the border of India and Nepal). It is the 23rd highest peak in the world.
46. (A) The fundamental object of Panchayati Raj system is to ensure people's participation in development, political accountability and democratic decentralization.
47. (B) Participatory Notes (PNs / P-Notes) are instruments used by investors or hedge funds that are not registered with the SEBI (Securities and Exchange Board of India) to invest in Indian securities. Participatory notes are instruments that derive their value from an underlying financial instrument such as an equity share and, hence, the word, 'derivative instruments'. SEBI permitted FIIs to register and participate in the Indian stock market in 1992.
50. (D) Amulya Kumar Patnaik, the 1985 batch IPS officer, has been appointed as the new Commissioner of Delhi Police. He succeeded Alok Kumar Verma, who has been appointed as the new chief of Central Bureau of Investigation (CBI).
51. (B) $+25\% - 40\% + (+25\%)$ of $(-40\%) = -25\%$
So, expenditure of sugar decreases by 25%
52. (C) Fresh fruit has 68% water, so 32% is fruit content.
Dry fruit has 20% water, so 80% is fruit content.
Let the weight of dry fruit be y kg.
ATQ,
$$\frac{32}{100} \times 100 = \frac{80}{100} \times y$$

$$\Rightarrow y = 40 \text{ gm}$$

$$\therefore \text{Weight of dry fruit is } 40 \text{ gm.}$$
53. (B) Let the present age of mother be x years.
Present age of son = $(30 - x)$ years
6 years ago, mother's age = $(x - 6)$ years
and son's age = $30 - x - 6 = 24 - x$ years
According to the question,
$$(x - 6) - (24 - x) = 12$$

$$\Rightarrow x - 6 - 24 + x = 12$$

$$\Rightarrow 2x - 30 = 12$$

$$\Rightarrow 2x = 12 + 30$$

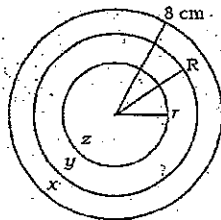
$$\Rightarrow 2x = 42$$

$$\Rightarrow x = 21$$

$$\therefore \text{Present age of son} = 30 - 21 = 9 \text{ years}$$
54. (D) $\frac{\tan \theta + \sin \theta}{\tan \theta - \sin \theta}$
$$\frac{\frac{\sin \theta}{\cos \theta} + \sin \theta}{\frac{\sin \theta}{\cos \theta} - \sin \theta} = \frac{\sin \theta \left(\frac{1}{\cos \theta} + 1 \right)}{\sin \theta \left(\frac{1}{\cos \theta} - 1 \right)} = \frac{\sec \theta + 1}{\sec \theta - 1}$$

$$= \frac{\frac{1}{\cos \theta} + 1}{\frac{1}{\cos \theta} - 1} = \frac{1 + \cos \theta}{1 - \cos \theta}$$
55. (D) Area of $z = \frac{\pi 8^2}{3}$
$$\therefore \pi r^2 = \frac{\pi \cdot 8^2}{3} \Rightarrow r^2 = \frac{8^2}{3}$$

$$\therefore r = \frac{8}{\sqrt{3}}$$



$$\text{Area of } y = \frac{\pi 8^2}{3}$$

$$\therefore \pi R^2 - \pi r^2 = \frac{\pi 8^2}{3}$$

$$R^2 - r^2 = \frac{8^2}{3}$$

$$\therefore R^2 - \frac{8^2}{3} = \frac{8^2}{3}$$

$$\Rightarrow R^2 = \frac{8^2}{3} + \frac{8^2}{3} = \frac{64}{3} + \frac{64}{3} = \frac{128}{3}$$

$$\therefore R = \sqrt{\frac{128}{3}} = \frac{8\sqrt{2}}{\sqrt{3}}$$

\therefore The ratio of radii = $8 : R : r$

$$= 8 : \frac{8\sqrt{2}}{\sqrt{3}} : \frac{8}{\sqrt{3}}$$

$$= 1 : \frac{\sqrt{2}}{\sqrt{3}} : \frac{1}{\sqrt{3}} = \sqrt{3} : \sqrt{2} : 1$$

\therefore The ratio in ascending order = $1 : \sqrt{2} : \sqrt{3}$

56. (B) $2\sin\alpha + 15\cos^2\alpha = 7$

$$\Rightarrow 2\sin\alpha + 15(1 - \sin^2\alpha) = 7$$

$$\therefore 2\sin\alpha + 15 - 15\sin^2\alpha = 7$$

$$\Rightarrow 15\sin^2\alpha - 2\sin\alpha - 8 = 0$$

$$15\sin^2\alpha - 12\sin\alpha + 10\sin\alpha - 8 = 0$$

$$\therefore 3\sin\alpha(5\sin\alpha - 4) + 2(5\sin\alpha - 4) = 0$$

$$\therefore (5\sin\alpha - 4)(3\sin\alpha + 2) = 0$$

$$\therefore 3\sin\alpha + 2 \neq 0 \text{ but } 5\sin\alpha - 4 = 0$$

$$\therefore 5\sin\alpha = 4 \Rightarrow \sin\alpha = \frac{4}{5} \Rightarrow \cos\alpha = \frac{3}{5}$$

$$\therefore \sin^2\alpha - \cos^2\alpha = \left(\frac{4}{5}\right)^2 - \left(\frac{3}{5}\right)^2 = \frac{7}{25}$$

57. (C) Let us convert the ratio in ₹ 1 form

| | | |
|-----|-----|-----|
| 4 | 6 | 9 |
| ↓ | ↓ | ↓ |
| 4x | 6x | 9x |
| ↓×5 | ↓×2 | ↓×1 |
| 20x | 12x | 9x |

As, Total amount = ₹ 287

$$\{20x + 12x + 9x\} = 287$$

$$x = 7$$

$$\therefore \text{Value of ₹ 1 coin} = 9 \times 7 = 63$$

$$\therefore \text{No. of ₹ 1 coin} = \frac{63}{1} = 63$$

58. (B) Let the CP of first article = x
then the CP of second article = $7500 - x$
ATQ,

$$\text{SP of first article} = \frac{6x}{5}$$

$$\text{SP of second article} = \frac{1500 - x}{2}$$

$$\text{Given, } \frac{6x}{5} = \frac{1500 - x}{2}$$

$$\Rightarrow 2x + x = 1500$$

$$\Rightarrow 3x = 1500 \Rightarrow x = 500$$

$$\therefore \text{CP of first article} = 500$$

$$\text{SP of first article will be} = 600$$

$$\therefore \text{Profit} = ₹ 100$$

$$\text{CP of second article} = 1500 - 500 = 1000$$

$$\text{SP of second article will be} = \frac{1500 - 1000}{2}$$

$$\therefore \text{Loss} = 250$$

$$\therefore \text{over all loss} = 250 - 100 = ₹ 150$$

59. (A) $x + \frac{1}{x} = 3 \Rightarrow \left(x + \frac{1}{x}\right)^2 = 3^2$

$$\therefore x^2 + \frac{1}{x^2} + 2 = 9 \Rightarrow x^2 + \frac{1}{x^2} = 7$$

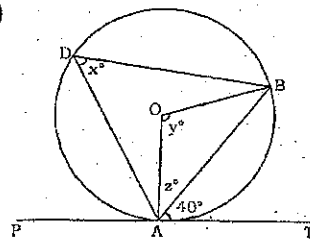
$$\Rightarrow \left(x^2 + \frac{1}{x^2}\right)^3 = 7^3$$

$$\Rightarrow (x^2)^3 + \left(\frac{1}{x^2}\right)^3 + 3 \cdot x^2 \cdot \frac{1}{x^2} \left(x^2 + \frac{1}{x^2}\right) = 343$$

$$\Rightarrow x^6 + \frac{1}{x^6} + 3 \times 1 \times 7 = 343$$

$$\Rightarrow x^6 + \frac{1}{x^6} = 343 - 21 = 322$$

60. (A)

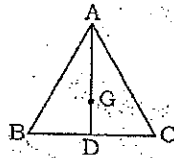


$\therefore x^\circ$ is an angle in the alternative segment for $\angle BAT$

$$\Rightarrow \angle BAT = x = 40^\circ$$

$\therefore y^\circ$ is angle at centre and x° is angle in the remaining arc
 $\Rightarrow y^\circ = x^\circ \times 2 = 80^\circ$
 \therefore in $\triangle OAB$, $\angle OBA = \angle OAB = z^\circ$
 $\Rightarrow y + z + z = 180^\circ$
 $\Rightarrow 80^\circ + 2z = 180^\circ$
 $\Rightarrow z = 50^\circ$

61. (C)



AB = 8 cm
 BD = 4 cm
 $\angle ADB = 90^\circ$
 $\therefore AD = \sqrt{AB^2 - BD^2}$
 $= \sqrt{8^2 - 4^2} = \sqrt{64 - 16} = \sqrt{48} = 4\sqrt{3}$ cm
 $AG = \frac{2}{3}AD = \frac{2}{3} \times 4\sqrt{3} = \frac{8\sqrt{3}}{3}$ cm

62. (A) Distance travelled by A = $2 \times$ distance between two points

$= 2 \times 14 \times \frac{3}{7} = 12$ km

63. (B) $x \cdot a(b-c) = \frac{y}{a} \cdot (b-c)$

$y = \frac{c-a}{b} = (c-a)$

$z \cdot c(a-b) = \frac{z}{c} \cdot (a-b)$

$\therefore \left(\frac{x}{a}\right)^3 + \left(\frac{y}{b}\right)^3 + \left(\frac{z}{c}\right)^3$
 $= (b-c)^3 + (c-a)^3 + (a-b)^3$
 $[\because b-c + c-a + a-b = 0]$
 $= 3 \cdot (b-c) \cdot (c-a) \cdot (a-b)$

$\Rightarrow 3 \cdot \frac{x}{a} \cdot \frac{y}{b} \cdot \frac{z}{c} = \frac{3xyz}{abc}$

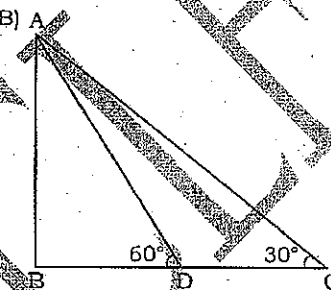
64. (D) LCM of 5, 6 and 8 = 120
 Required number = $120K + 3$
 When $K = 2$, $120 \times 2 + 3 = 243$
 Required number = 243
 and it is also completely divisible by 9.

65. (B) Percent Gain = $\frac{\text{Error}}{\text{True value} - \text{Error}} \times 100$

$= \frac{150}{850} \times 100 = \frac{300}{17} = 17\frac{11}{17}\%$

66. (D) We should have S.I., principal and time to find the rate.
 Since the principal is not given, so data is inadequate and we can't find the required interest.

67. (B) A



Height of the tower = $\frac{\text{Distance}}{\cot 60^\circ - \cot 30^\circ}$
 $= \frac{10}{\sqrt{3} - \frac{1}{\sqrt{3}}} = \frac{10}{\frac{\sqrt{3}-1}{\sqrt{3}}} = 5\sqrt{3}$ m

68. (C) P + Q \rightarrow 30
 Q + R \rightarrow 24
 R + P \rightarrow 20

1 day work of P + Q + R = 7.5 units/day
 \therefore Efficiency of P = 2.5 units/day
 Remaining work after 10 days = 45
 Time taken by P to complete the work
 $= \frac{45}{2.5} = 18$ days

69. (D) $\sin \theta = \frac{b}{\sqrt{a^2 + b^2}}$

$\cos \theta = \sqrt{1 - \frac{b^2}{a^2 + b^2}} = \sqrt{\frac{a^2}{a^2 + b^2}} = \frac{a}{\sqrt{a^2 + b^2}}$

$\therefore \tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{b}{a}$

70. (B) As the numbers are co-prime, they contain only 1 as the common factor.
 Also, the given two products have the middle number in common.
 So, middle number

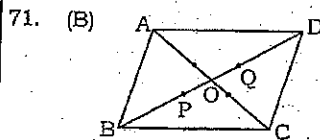
= H.C.F. of 551 and 1073 = 29

First number = $\left(\frac{551}{29}\right) = 19$

Third number = $\left(\frac{1073}{29}\right) = 37$

\Rightarrow Sum = $(19 + 29 + 37) = 85$

\therefore Required average = $\frac{85}{3} = 28.3$



Centroid is the point where medians intersect. Diagonals of parallelogram bisect each other.

$OP = \frac{1}{3} \times 7.5 = 2.5 \text{ cm}$

$OQ = \frac{1}{3} \times 7.5 = 2.5 \text{ cm}$

$\therefore PQ = 2.5 + 2.5 = 5 \text{ cm}$

72. (D) Required run rate = $\frac{345 - (2.5 \times 8)}{32}$

= $\frac{300}{32} = 9.375$

73. (C) Production in 2013 = 360 tonnes
Production in 2017 = 720 tonnes
Percent increase in production

= $\frac{720 - 360}{360} \times 100 = 100\%$

74. (C) Production in 2016 = 600 tonnes
Production in 2012 = 240 tonnes

Percent increase = $\frac{600 - 240}{240} \times 100$

= $\frac{360}{240} \times 100 = 150\%$

75. (C) Production in 2014 = 540
Production in 2015 = 480

Percent decrease = $\frac{540 - 480}{540} \times 100$

= $\frac{60}{540} \times 100$

= $11\frac{1}{9}\%$

PINNACLE

MEANINGS IN ALPHABETICAL ORDER

| Word | Meaning in English | Meaning in Hindi |
|-----------------|---|---|
| Accomplished | highly trained or skilled. | निपुण, कुशल |
| Account | a description of an event or experience | विवरण, वृत्तान्त |
| Adulatory | excessively praising or admiring. | चाटुकारितापूर्ण |
| Agenda | a list of items to be discussed at a formal meeting | कार्यसूची |
| Amicable | having a spirit of friendliness | सौहार्दपूर्ण |
| Claustrophobia | extreme or irrational fear of confined places | बंद स्थान से भय |
| Collaboration | participation | सहभागिता |
| Defiantly | in a way determined to refuse something | बेहिचक रूप से |
| Discreet | thoughtful and cautious | विचारशील |
| Disgruntled | angry or dissatisfied | नाराज, रोषपूर्ण |
| Elicit | to draw out a response | प्रतिक्रिया प्राप्त करना |
| Endocrinologist | a doctor who studies the part of medicine concerning the endocrine system and hormones | अन्तःस्रावविज्ञानी |
| Enlist | enroll | भर्ती होना |
| Evoke | bring or recall | आवाहन करना, बुलाना |
| Exuberance | the quality of being cheerful and full of energy | उत्साह |
| Foster | encourage or promote the development of something | प्रोत्साहित करना |
| Gerontologist | a person who studies the process and diseases of old age | वृद्धावस्था की बीमारी का अध्ययन करने वाला |
| Hydrophobia | extreme or irrational fear of water | पानी से भय |
| Immutable | fixed or permanent | दृढ़, स्थिर |
| Innuendo | an oblique disparaging remark | कटाक्ष |
| Jubilation | a feeling of great happiness and triumph | आनन्दोत्सव, अश्न |
| Progeria | a rare syndrome in children characterized by physical signs and symptoms suggestive of premature old age. | बच्चों में पायी जाने वाली समयपूर्व वृद्ध होने की बीमारी |
| Prompt | cause or encourage | प्रेरित करना |
| Proposition | a proposal or thesis | प्रस्ताव |
| Recall | remember | याद करना |
| Recollect | remember | याद करना |
| Repress | subdue something | रोकना, दमन करना |
| Resilience | elasticity | लचीलापन |
| Rhinologist | a doctor associated with the treatment of nose | नाक का डॉक्टर |
| Scurrilous | having scandalous claims about someone | अपमानजनक |

SSC Answer Key (18 May-17)

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