

SSC Solution & Key

1. (D) As, B A B Y
 $\downarrow +1^2 \downarrow +2^2 \downarrow +3^2 \downarrow +4^2$
 C E K O

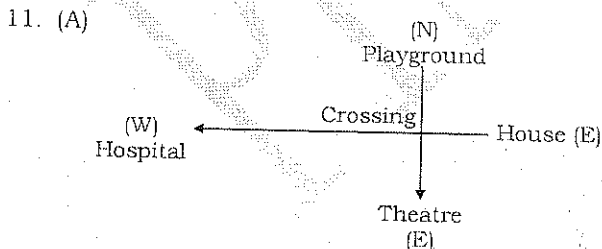
Similarly, B A B A
 $\downarrow +1^2 \downarrow +2^2 \downarrow +3^2 \downarrow +4^2$
 C E K Q

2. (B) $6 \times 4 = 24 \Rightarrow 2 \times 4 = 8$
 $2 \times 8 = 16 \Rightarrow 1 \times 6 = 6$

3. (B) As, 2 3 1
 $\downarrow 2^2 \downarrow 3^2 \downarrow 1^2$
 4 9 1

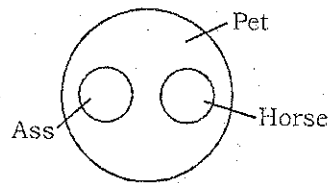
Similarly, 3 0 2
 $\downarrow 2^2 \downarrow 3^2 \downarrow 1^2$
 9 0 4

4. (D) A group of letters form a word and a group of words form a sentence.
 5. (D) Except (D), others are in form of $(x^3 - x)$ where $x = 3, 5, 7$.
 6. (D) In 'YELLOW' we can find two vowels i.e. 'E and O', whereas in others only one vowel is present.
 7. (C) Except (C), other are continents.
 8. (D) Except (D), other are prime numbers.
 9. (B) Since each pole at the corner of the plot is common to its two sides, so we have:
 Total number of poles needed
 $= 37 \times 4 - 4 = 148 - 4 = 144$
 10. (B) The girl is the daughter of the sister of Sandeep's father. Hence, the girl is the cousin or Sandeep is the cousin of the girl.

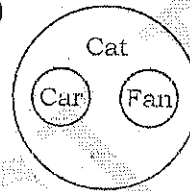


12. (B) $6 \times 0.5 + 1 = 4$
 $4 \times 1 + 2 = 6$
 $6 \times 2 + 3 = 15$
 $15 \times 4 + 4 = 64$
 $64 \times 8 + 5 = 517$
 $517 \times 16 + 6 = 8278$

13. (D) Ass and Horse are different from each other but both are pet.



14. (D)



Neither I nor II follows.

15. (B) $2 \otimes 4 \otimes 1 \otimes 5 \otimes 3$

16. (A) $6^2 + \frac{6}{2} = 36 + 3 = 39$

$8^2 + \frac{8}{2} = 64 + 4 = 68$

$12^2 + \frac{12}{2} = 144 + 6 = 150$

$4^2 + \frac{4}{2} = 16 + 2 = 18$

17. (B) $(4 \times 3 - 2)^2 + (4 + 2 + 3) = 100 + 9 = 109$
 $(5 \times 2 - 3)^2 + (5 + 3 + 2) = 49 + 10 = 59$
 $(8 \times 2 - 4)^2 + (8 + 4 + 2) = 144 + 14 = 158$
 $(6 \times 3 - 5)^2 + (6 + 5 + 3) = 169 + 14 = 183$
 18. (C) LCM (24, 36, 48) = 144
 LCM (16, 24, 36) = 144
 LCM (18, 16, 32) = 288

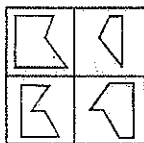
19. (A)

20. (D) The two half-shaded faces lie opposite to each other and one of the three blank faces appears opposite to the face bearing a dot. Clearly, each one of the four cubes shown in figures (A), (B), (C) and (D) can be formed by folding the sheet shown in figure.

21. (D) M S D O M G B A N J O
 $\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$
 13 19 4 15 13 7 2 1 14 10 15
 $\frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2} \frac{1}{2}$
 26 38 08 30 26 14 04 02 28 20 30

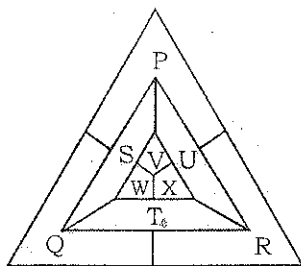
22. (A)

23. (D)



24. (D)

25. (D) The figure may be labelled as shown.



Now, in order that no two adjacent spaces be shaded by the same colour, the spaces T, U and S must be shaded with the colours of the spaces P, Q and R respectively.

Also the spaces X, V and W must be shaded with the colours of the spaces S, T and U respectively i.e. with the colours of the spaces R, P and Q respectively. Thus, minimum three colours are required.

26. (B) Guru Hargobind - Miri and Piri; Guru Gobind Singh - Dal Khalsa

27. (C) The book "Far and Away : Reporting From the Brink of Change" has been authored by Andrew Solomon. It is a big, sumptuous collection of those pieces of reportage and travel writing. It is inspired by love, uncertainty about home and a celebration of freedom which valuably warns that freedom must sometimes be learned.

28. (C) Continental drift has affected the evolution of Animals. Pangaea split apart in the Triassic period (245 to 208 million years ago) dividing landmass in Gondwanaland and Laurasia. The rearrangement of landmass led to diversity among animals. Glacial period helped into the evolution of many species as they provided a favourable condition for their growth.

29. (D) As India follows Universal Adult Suffrage. Elected members of the Lower House of the State Legislature i.e., The Elected members of the lower house of the State legislature have the right to vote in the elections to both the Lok Sabha and Rajya Sabha. The State Legislature besides making laws also has one electoral power in electing the President of India. Elected members of the Legislative Assembly along with the elected members of Parliament are involved in this process.

30. (B) Meteor is a small celestial body which has entered the Earth's atmosphere by the gravitational force of Earth, when they pass close to it. Meteors typically occur in the mesosphere, and most range in altitude from 75 km to 100 km.

31. (A) The blooming of desert plants is controlled by low temperature.

32. (D) Sheikh Mohammed bin Zayed Al Nahyan Sheikh Mohammed bin Zayed Al Nahyan, the crown prince of Abu Dhabi, will be the chief guest for the 68th Republic Day celebrations of India on January 26, 2017.

33. (D) Art. 269 says taxes on income other than agricultural income shall be levied and collected by the Government of India and distributed between the Union and States. Entry 46 in the state list of Seventh Schedule. This gives power to the state governments to impose agricultural income tax.

34. (B) The short film "Murga", which was directed by young filmmaker Katyayan Shivpuri from Maharashtra, has won the first prize at the Swachh Bharat Short Film Festival (SBSFF). The short film promotes the idea of clean India in which "Murga" as the metaphor depicts the victims that citizens have made of themselves and of the children by not keeping the surroundings clean. Minister of Information and Broadcasting, M Venkaiah Naidu awarded Katyayan with a certificate and a cash prize of Rs 10 lakh.

35. (D) Maski inscription at Raichur doab in Karnataka mentions his personal name, Devanam Piyadasi.

36. (B) Political scientists speculate that proportional representation leads logically to multi-party systems, since it allows new parties to build a niche in the legislature.

37. (B) Lucknow Pact - 1916; Introduction of Dyarchy Under Montford Reforms (GIA 1919) - July 1918; Rowlatt Act - March 1919; Partition of Bengal - 1905.

38. (C) The coal found in India is mainly of non-coking quality and hence coking coal has to be imported. 70% of the steel produced today uses coal. Coking coal is a vital ingredient in the steel making process.

39. (D) Lok Adalats are being held in all the three areas.

40. (B) According to the physiography map of India the mountain ranges found in Jammu and Kashmir are Karakoram which is marked as '1' in figure. Ladakh range which is marked as '2', Zaskar range which is marked as '3', and Pir Panjal which is marked as '4'.

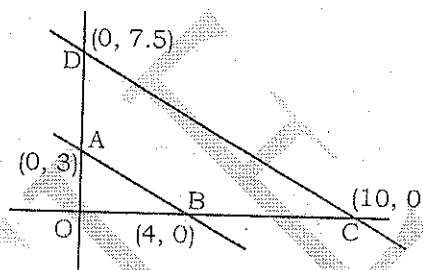
42. (D) Per capita real income is nothing but NNP at factor cost. It means national income is sum total of all factor incomes adjusted for increase in prices.
43. (A) Rodenticides (Rat poison) are "pest control chemicals" used for purpose of killing rodents.
44. (C) The Japanese scientist, Dr. Yoshinori Ohsumi has won the 2016 Nobel Prize in Physiology or Medicine for his discoveries of mechanisms for autophagy, a fundamental process for degrading and recycling cellular components. Dr Ohsumi's work is important because it helps to explain what goes wrong in a range of illnesses, from cancer to Parkinson's. The prize was awarded by the Nobel Assembly at the Karolinska Institute in Stockholm, Sweden.
45. (A) Scalars are quantities that have magnitude only; they are independent of direction. Vectors have both magnitude and direction. Momentum is the product of the mass and velocity of an object ($p = mv$). Momentum is a vector quantity, since it has a direction as well as a magnitude. The rest of quantities in option pressure, work and energy have magnitude but not direction.
49. (B) Capillary action, or capillarity, is a phenomenon where liquid spontaneously rises in a narrow space such as a thin tube, or in porous materials such as paper or in some non-porous materials such as liquefied carbon fibre. This effect can cause liquids to flow against the force of gravity or the magnetic field induction. In blotting of ink, spread of water drop on a cotton cloth and the rising of water from the roots of a plant to its foliage.
50. (A) A Uniform Resource Locator (URL) is commonly informally referred to as a web address, although the term is not defined identically. It is a reference to a web resource that specifies its location on a computer network and a mechanism for retrieving it. URLs occur most commonly to reference web pages (http), and is also used for file transfer (ftp), email (mailto), database access (JDBC), and many other applications.

51. (D) Here $a = 1$ and $r = -\frac{1}{3}$

$$\text{then required sum} = \frac{a}{1-r} = \frac{1}{1+\frac{1}{3}} = \frac{3}{4}$$

52. (D) $\text{Loss \%} = \frac{40^2}{100} = 16\%$

53. (B) Line $3x + 4y = 12$ intersects the Y-axis at A (0, 3) and X-axis at B = (4, 0)
Line $6x + 8y = 60$ intersects the Y-axis at D (0, 7.5) and X-axis at C = (10, 0)
Hence ABCD is the trapezoidal for which the area is to calculate



Area of trapezoidal = Area of ΔODC - area of ΔOAB

$$= \frac{1}{2}(10 \times 7.5) - \frac{1}{2}(4 \times 3)$$

$$= 37.5 - 6$$

$$= 31.5 \text{ sq. unit}$$

54. (C) $\sqrt{6((-1)^8)^2 + (1^2)^5} - (-1^5 + 1^2)$

$$= \sqrt{[1+1]} - [-1+1]$$

$$= \sqrt{2-0} = \sqrt{2}$$

55. (C) Let the contribution of P, Q, R and S be ₹ p, ₹ r and ₹ s respectively.

$$\therefore p + q + r + s = 56$$

Since contribution of Q, R and S together is 460% that of P, alone

$$\backslash q + r + s = 460\% \text{ of } p$$

$$\text{or } 56 - p = 460\% \text{ of } p$$

$$\text{or } p = ₹ 10 \text{ lakhs}$$

$$\backslash P \text{ contributed } ₹ 10 \text{ lakhs}$$

Since contribution of P, R and S together is 366.66% that of Q's contribution

$$\backslash p + r + s = 366.66\% \text{ of } q$$

$$\text{or } 56 - q = 366.66\% \text{ of } q$$

$$\text{or } q = ₹ 12 \text{ lakhs}$$

$$\backslash Q \text{ contributed } ₹ 12 \text{ lakhs}$$

Since contribution of R is 40% that of P, Q and S together

$$\backslash r = 40\% \text{ of } (p + q + s)$$

$$\text{or } r = 40\% \text{ of } (56 - r)$$

$$\text{or } r = ₹ 16 \text{ lakh}$$

$$\backslash R \text{ contributed } ₹ 16 \text{ lakh}$$

$$\backslash \text{The contribution of } S = 56 - (10 + 12 + 16) = 18 \text{ lakh}$$

56. (C) $x^{\sqrt{x}} = \frac{x^{\frac{3}{2} \cdot \frac{1}{\sqrt{x}}}}{\frac{1}{\sqrt{x}}} = x^{\frac{3x}{2}}$

$x\sqrt{x} = \frac{3x}{2}$ (equating both equations)

$\sqrt{x} = \frac{3}{2} \Rightarrow x = \frac{9}{4}$

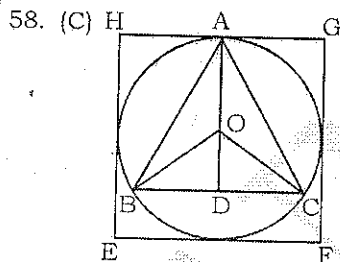
57. (A) Let CP = x, then SP = $105 \frac{x}{100}$

Now CP = $\frac{95x}{100}$ and gain = 10% of $\frac{95x}{100} = \frac{95x}{1000}$

SP = $\frac{95x}{100} + \frac{95x}{1000} = \frac{1045x}{1000}$

$\frac{1045x}{1000} - \frac{1050x}{1000} = -2$

$x = 400$



Area of equilateral triangle ABC

$= \frac{\sqrt{3}}{4} \times (4\sqrt{3})^2 = (4\sqrt{3})^2 = 12\sqrt{3} \text{ cm}^2$

Again, AD is the height and O is the centre of the circle

\ Area of $\triangle ABC$

$= \frac{1}{2} \times BC \times AD$

$\Rightarrow 12\sqrt{3} = \frac{1}{2} \times 4\sqrt{3} \times AD \Rightarrow AD = \frac{12\sqrt{3}}{2\sqrt{3}} = 6$

\ OD = $\frac{1}{3}$ AD = 2 cm

\ OB = $\sqrt{BD^2 + OD^2}$

$= \sqrt{(2\sqrt{3})^2 + 2^2} = \sqrt{16} = 4 \text{ cm}$

\ Side of square = $2 \times OB = 2 \times 4 = 8 \text{ cm}$

\ Diagonal of square

$= \sqrt{2} \times \text{side} = 8\sqrt{2} \text{ cm}$

59. (D) $2\sqrt{x} = \frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}} - \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$

$\Rightarrow 2\sqrt{x} = \frac{(\sqrt{5} + \sqrt{3})^2 - (\sqrt{5} - \sqrt{3})^2}{\sqrt{5}^2 - \sqrt{3}^2}$

$\Rightarrow 2\sqrt{x} = \frac{(5+3+2\sqrt{15}) - (5+3-2\sqrt{15})}{5-3}$

$\Rightarrow 2\sqrt{x} = \frac{4\sqrt{15}}{2} = 2\sqrt{15}$

$\Rightarrow \sqrt{x} = \sqrt{15}$

$\Rightarrow x = 15$

60. (A) $\frac{a}{b} + \frac{b}{a} = \frac{a^2 + b^2}{ab}$

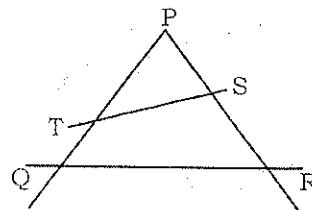
$2x^2 - 7x + 12 = 0 \Rightarrow a + b = \frac{-b}{a} = \frac{7}{2}$

and $ab = \frac{12}{2} = 6$

then $\frac{a^2 + b^2}{ab} = \frac{(a+b)^2 - 2ab}{ab} = \frac{\frac{49}{4} - 6 \cdot 2}{6}$

$= \frac{\frac{49}{4} - 12}{6} = \frac{1}{24}$

61. (C)



PT = 5

QT = 3

PS = 3

Let SR = x

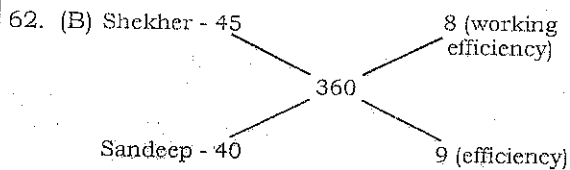
\ $\triangle PQR \sim \triangle PST$ and $\triangle P$ is common.

So, $\triangle PRQ \sim \triangle PTS$

Hence, $\frac{PS}{PQ} = \frac{PT}{PR}$

$\Rightarrow \frac{3}{5+3} = \frac{5}{3+x} \Rightarrow \frac{3}{8} = \frac{5}{3+x} \Rightarrow 40 = 9 + 3x$

$\Rightarrow x = \frac{31}{3}$



Total work to do done = 360 unit
Shekher work for 56 day with the half

efficiency then work done = $56 \times \frac{8}{2} = 224$

Remaining work = $360 - 224 = 136$
This work is done by both Shekher and

Sandeep together then time taken = $\frac{136}{8+9} = 8$

Shekher and Sandeep work together for 8 days.

63. (C) $\sec a + \tan a = 2$

$$\Rightarrow \frac{1}{\cos a} + \frac{\sin a}{\cos a} = 2 \Rightarrow \frac{(1 + \sin a)}{\cos a} = 2$$

Squaring both the sides

$$\Rightarrow \frac{(1 + \sin a)^2}{\cos^2 a} = 4 \Rightarrow \frac{(1 + \sin a)^2}{(1 - \sin^2 a)} = 4$$

$$\Rightarrow \frac{(1 + \sin a)^2}{(1 - \sin a)(1 + \sin a)} = 4 \Rightarrow \frac{(1 + \sin a)}{(1 - \sin a)} = 4$$

$$\Rightarrow 1 + \sin a = 4 - 4 \sin a$$

$$\Rightarrow 5 \sin a = 3$$

$$\Rightarrow \sin a = 0.6$$

64. (B) Let the number of sides be 'x'.

Then ATQ,

$$5 \times 192 + (x-5) \times 160 = (x-2) \times 180$$

$$\Rightarrow 960 + 160x - 800 = 180x - 360 \Rightarrow 20x = 520$$

So, $x = 26$.

65. (B) $x^3 = \frac{1}{\sqrt{2}+1} (\sqrt{2}+1)^{\frac{1}{3}}$

$$\Rightarrow x^3 = \frac{1}{\sqrt{2}+1} \text{ and } \frac{1}{x^3} = \sqrt{2}+1$$

$$\text{then } x^3 - \frac{1}{x^3} = \frac{1}{\sqrt{2}+1} - \sqrt{2}+1 = \frac{1 - (\sqrt{2}+1)^2}{\sqrt{2}+1}$$

$$= \frac{1 - (2 + 2\sqrt{2} + 1)}{\sqrt{2}+1} = \frac{-2 - 2\sqrt{2}}{\sqrt{2}+1} = -2$$

66. (D) Diff. of interest in 1 yr = $\frac{13.50}{3} = 4.5 = \frac{9}{2}$

As, the difference is on ₹ 1500. So, we need to find the rate of interest and calculation is to be done on 100

\ On ₹ 100, the difference of interest

$$= \frac{9}{2} \times \frac{1}{1500} \times 100 = \frac{3}{10} = 0.3\%$$

\ Diff. of rate of interest = 0.3%

67. (D) $x^3 + y^3 = 9$ and $x + y = 3$ then,

$$x^3 + y^3 = (x + y)(x^2 - xy + y^2)$$

$$9 = 3((x + y)^2 - 3xy)$$

$$\Rightarrow 9 = 3(9 - 3xy) \Rightarrow 9 = 27 - 9xy$$

$$\Rightarrow xy = 2$$

$$x^4 + y^4 + xy(x^2 + y^2) = 27$$

$$\Rightarrow x^4 + y^4 = 27 - 2((x + y)^2 - 2xy)$$

$$= 27 - 2(9 - 4) = 17$$

68. (A) $1^3 + 2^3 = \frac{1^2}{2} \cdot \frac{3 \cdot 6^2}{2 \cdot 6} = 3^2 = 9$

$$1^3 + 2^3 + 3^3 + \dots + 10^3 = \frac{10 \cdot 11 \cdot 6^2}{6} = 3025$$

\ Required sum = $3025 - 9 = 3016$

69. (B) Let C be 100,

$$\text{then, } B = 80 \text{ and } A = 80 \times \frac{8}{5} = 128$$

$$\text{then, } 2A : 3B : 5C = 2 \times 128 : 3 \times 80 : 5 \times 100 \\ = 256 : 240 : 500 \\ = 64 : 60 : 125$$

70. (B) $a^2 + a + 1 = 0$

$$\Rightarrow (a - 1)(a^2 + a + 1) = 0 \Rightarrow (a - 1)$$

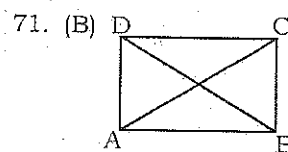
$$\Rightarrow a^3 - 1^3 = 0$$

$$\Rightarrow a^3 = 1$$

$$\Rightarrow (a^3)^3 = 1^3$$

$$\Rightarrow a^9 + 2 = 1^3 + 2$$

$$\Rightarrow a^9 + 2 = 3$$



Given:- ABCD is a parallelogram.

$$\text{Then, } AB^2 + BC^2 + CD^2 + DA^2$$

$$= AC^2 + BD^2$$

72. (B) $\sqrt{5 \cdot 5 \cdot 5 \cdot 5}$ 1

Ⓐ $\sqrt{5 \cdot \frac{1}{5} \cdot \frac{1}{5} \cdot \frac{1}{5}}$ 1

Ⓒ $\frac{1}{5}$ < 1

So, (B) is the right option.

73. (D) For the publisher to earn a profit of 25%,
S.P. = 125% of C.P.

Also transportation Cost = 10% of C.P.

Let the S.P. of 5500 books be ₹ x.

$$10 : 125 = 82500 : x$$

$$\Rightarrow x = \frac{125 \cdot 82500}{10} \Rightarrow x = 1031250$$

$$\text{S.P. of one book} = \frac{1031250}{5500} = 187.50$$

74. (B) Printing cost of book = 20% of C.P.

Royalty on book = 15% of C.P.

Difference = (20% - 15%) = 5% of C.P.

$$\% \text{ Difference} = \frac{\% \text{ Difference}}{\% \text{ Printing Cost}} \cdot 100\%$$

$$= \frac{5\% \text{ of C.P.}}{20\% \text{ of C.P.}} \cdot 100\% = 25\%$$

75. (D) Let the royalty to be paid for these books
be ₹ r.

then

$$20 : 15 = 30600 : r$$

$$r = \frac{30600 \cdot 15}{20} \quad r = 22950$$

\ Amount of royalty to be paid = ₹ 22950

MEANINGS IN ALPHABETICAL ORDER

Word	Meaning in English	Meaning in Hindi
Assiduous	hardworking or diligent	मेहनती, परिश्रमी
Audacious	bold and fearless	साहसी, निर्भिक
Break the ice	to start conversation	बात-चीत का पहल करना
Diagnosing	identify the nature of (an illness or other problem) by examination of the symptoms	रोग की पहचान करना
Epithet	A term used as a descriptive substitute for the name or title of a person	रुपाधि
Exemplary	providing a good example for people to follow	अनुकरणीय
Generosity	the quality of being kind and generous	उदारता
Imbibe	to take in	आत्मसात
Omnipotent	having unlimited power	सर्वशक्तिमान
Paucity	scarcity	कमी
Retaliate	make an attack or assault in return for a similar attack	बदला लेना
Transient	lasting only for a short time; impermanent	क्षणिक

SSC Answer Key - 11 Nov - 16

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