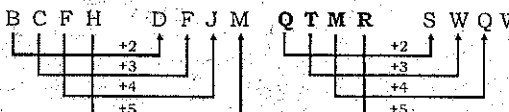
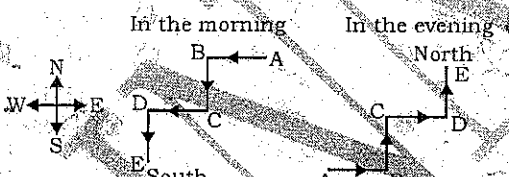


## SSC Solution (13 Jan - 17)

1. (B)  $123 \Rightarrow (13)^2 = 169$   
 $126 \Rightarrow (16)^2 = 256$
2. (D) First is the capital of second.
3. (B)  $B C F H \quad D F J M \quad Q T M R \quad S W Q W$
- 

4. (C)  $22 \Rightarrow 22^2 + \frac{22}{2} = 484 + 11 = 495$   
 $24 \Rightarrow 24^2 + \frac{24}{2} = 576 + 12 = 588$
5. (B) Except **EYE**, the other words have two different vowels.
6. (D) Except **Cylinder**, other are 2-D geometrical figure.
7. (A) Only for **64**, both square root and cube root is possible.
8. (C) Except **Kurushetra**, other cities are in Punjab.
9. (D) The woman is the mother of Shashank's grand daughter. Hence, the woman is the **daughter-in-law** of Shashank.

10. (A)
- 

If he starts walking in the morning then finally he will face South and if he starts in the evening then finally he will face North.

11. (C) Since B and D are twins, so  $B = D$ .  
Now,  $A = B + 3$  and  $A = C - 3$ .  
Thus,  $B + 3 = C - 3 \Rightarrow D + 3 = C - 3$   
 $\Rightarrow C - D = 6$ .
12. (C)
13. (B) As the numbers 2, 3, 4 and 5 are adjacent to 6. Hence the number on the face opposite to 6 is 1.
14. (C)  $9 \xrightarrow{\sqrt{9}} 81 \xrightarrow{9^2} 3 \quad 16 \xrightarrow{\sqrt{16}} 256 \xrightarrow{16^2} 4 \quad 25 \xrightarrow{\sqrt{25}} 625 \xrightarrow{25^2} 5$
15. (C)  $3 \xrightarrow{+6} 9 \xrightarrow{+12} 27 \xrightarrow{+12} 57 \xrightarrow{+12} 99 \xrightarrow{+12} 153$
16. (C)  $2 \rightarrow 4 \rightarrow 1 \rightarrow 5 \rightarrow 3$

17. (B) According to the statement, sea transport is cheaper than road transport in the case of route from Bombay to Jafra, not in all the cases. So, conclusion I does not follow. The statement stresses on the saving of fuel. So, conclusion II follows.

18. (B)  $36 \Rightarrow \sqrt{36} = 6 \Rightarrow 6 + 1 = 7$   
 $25 \Rightarrow \sqrt{25} = 5 \Rightarrow 5 + 1 = 6$   
 $64 \Rightarrow \sqrt{64} = 8 \Rightarrow 8 + 1 = 9$

19. (C)  $(12 \times 6) - 2 = 70 \Rightarrow \frac{70}{10} = 7$

$$(18 \times 3) - 4 = 50 \Rightarrow \frac{50}{10} = 5$$

$$(19 \times 4) - 6 = 70 \Rightarrow \frac{70}{10} = 7$$

20. (B)  $8 + 7 + 3 = 18 \Rightarrow \frac{18}{3} = 6$

$$9 + 8 + 7 = 24 \Rightarrow \frac{24}{3} = 8$$

$$12 + 15 + 12 = 39 \Rightarrow \frac{39}{3} = 13$$

$$2 + 3 + 1 = 6 \Rightarrow \frac{6}{3} = 2$$

21. (D)
22. (C)
23. (B)
24. (C)  $324 \oplus 289 = 324 - 289 = 35 \Rightarrow 35^2 = 1225$   
 $256 \oplus 225 = 256 - 225 = 31 \Rightarrow 31^2 = 961$   
 $49 \oplus 25 = 49 - 25 = 24 \Rightarrow 24^2 = 576$   
 $186 \oplus 97 = 187 - 97 = 89 \Rightarrow 89^2 = 7921$

25. (B)
- |               |   |   |   |
|---------------|---|---|---|
| Front Face    | A | F | E |
| Opposite Face | D | C | B |

26. (D) The Union government has launched the "Digi-Dhan Vyapar Yojana" for Merchants and "Lucky Grahak Yojana" for Consumers in New Delhi. The purpose of the schemes is to encourage people to move towards digital transactions through the offer of incentives. Both the schemes will be implemented by National Payments Corporation of India (NPCI). For these schemes, only those transactions that take place through RuPay Cards, Unstructured

Supplementary Service Data (USSD), Unified Payment Interface (UPI) and Aadhaar Enabled Payment System (AEPS) are eligible. The schemes has been launched with the first draw by the Minister for Electronics and Information Technology Ravi Shankar Prasad and Finance Minister Arun Jaitley on December 25<sup>th</sup>, 2016.

27. (C) Philosopher's wool is an oxide of zinc with a white powder used as a pigment, cosmetics, glass, inks and zinc ointment.
28. (D) Bacteria, micro algae and fungi are most widely used in industries. Bacteria like *Lactobacillus* sp. is used in manufacturing of vinegar and alcohol by fermentation process. Most of algae are used as single cell protein (i.e. Spirulina). Different drugs like penicillin are manufactured from fungi *Penicillium notatum*.
29. (A) X-ray, computed tomography (CT) is a medical imaging method employing tomography created by computer processing. This technique is used to generate a three-dimensional image of the inside of an object.
30. (B) The XXI Commonwealth Games will be held in Gold Coast City, Queensland, Australia between 4<sup>th</sup> to 15<sup>th</sup> April 2018. The Gold Coast's creative concept in the Ceremony brought to life the three brand pillars of the Gold Coast 2018 Commonwealth Games 'The Place', 'The Event' and 'The Sport'.  
NOTE: 22<sup>nd</sup> Commonwealth Games would be held from 18<sup>th</sup> to 30<sup>th</sup> July 2022. The opening ceremony will be held on the birth date of the late South African President and Anti-apartheid leader Nelson Mandela.
31. (A) Deficiency of vitamin C causes Scurvy, a disease of gums. Deficiency of vitamin D causes Rickets, a disease of bones and Deficiency of Vitamin A causes night blindness, a disease of eyes.
32. (A) The Archaeological Survey of India established in 1861 is a department of the Government of India attached to the Ministry of Culture. ASI is responsible for archaeological studies and the preservation of archaeological heritage of the country in accordance with the various acts of the Indian Parliament.
33. (A) Antiseptic are antimicrobial substances

that are applied to living tissue/skin to reduce the possibility of infection, sepsis, or putrefaction. Now phenyl being a phenol derivative possesses effective germicidal properties because phenol is germicidal in strong solution. Used in the form of a powder as an antiseptic baby powder, it has a pain killing effect as well. Example: TCP (Trichlorophenol).

35. (D) The Union Minister of Consumer Affairs, Ram Vilas Paswan has recently launched an 'Online Consumer Mediation Centre (OCMC)' in association with the Bengaluru's National Law School of India University (NLSIU) to provide speedy redressal of consumer grievances in New Delhi. Initially, the OCMC deal with only cases related to e-commerce companies and will facilitate online and even physical mediation between consumers and companies. Apart from this, ministry has also launched 'Smart Consumer' mobile App and helpline no. '14404' for consumer related grievances and also launched Microsite based on the theme "Digitally-Safe Consumer Campaign" to help consumers for being vigilant and not falling prey to cyber frauds. The basic purpose of the Centre is to encourage consumers and companies to go for pre-litigation and provide them with an option to settle disputes amicably.
36. (A) A solar eclipse occurs as the moon passes in front of the sun, resulting in the earth falling into the shadow of the moon.
37. (C) According to NHRC Act 1993, only a retired CJI can become chairman of NHRC, appointed by President on the recommendation of a committee comprising of PM, Speaker of Lok Sabha, Home Minister, Leader of Opposition of both Houses of Parliament and Deputy Chairman of Rajya Sabha.
39. (D) Housed within the Carbon Finance Unit of the World Bank, the Bio Carbon Fund is a public-private sector initiative mobilizing financing to help for development of projects that conserve carbon in forest and agro-ecosystems. It was created in 2004.
40. (D) The Good Governance Day (GGD) is observed every year in India to mark the birth anniversary of former Prime Minister Atal Bihari Vajpayee. The day was established to honour Prime Minister Vajpayee by fostering awareness among the Indian people of accountability in

government. From December 25<sup>th</sup>, 2016, the Good Governance campaign will be undertaken for 100 days during which Ministers and Members of Parliament (MoP) will travel across the country and attend programmes highlighting the government's key initiatives. The effort of the government is to improve delivery systems, to promote digital transformation and take forward the connectivity revolution in all sectors.

41. (D) Nitroglycerine (NG) also known as nitroglycerine, trinitroglycerin, trinitroglycerine, 1, 2, 3 - trinitroxypropane and glyceryl trinitrate is a heavy, colourless, oily, explosive liquid obtained by nitrating glycerol. Alfred Nobel discovered that mixing nitroglycerin with diatomaceous earth would turn the liquid into a paste, called dynamite. An advantage of dynamite was that it could be cylinder-shaped for insertion into the drilling holes used for mining.
43. (A) Under Article 76, impeachment procedure of the Attorney-General is not provided. He shall hold office during the pleasure of the President. He must not be a member of either House of Parliament.
44. (D) Cotton is generally considered a rainfed crop. It is also grown in areas where assured irrigation is not available. Black soils can retain water which is very useful property for rainfed crops to grow. The texture of the soil is supportive for the growth of cotton. So black soils are more suitable for cotton to grow.
45. (C) Biotech Labs in Senior Secondary Schools (BlISS) is a scheme to encourage students to consider careers in biotechnology. This scheme envisages to establish labs in North-Eastern States viz. Assam, Arunachal Pradesh, Meghalaya, Mizoram, Tripura, Nagaland, Sikkim and Manipur.
46. (B) The Part III of the Constitution of India gives a detailed description on a charter of rights called the 'fundamental Rights'. These fundamental rights guarantee civil freedom to all the citizens of India to allow them to live in peace and harmony. These are the basic rights that every Indian citizen has the right to enjoy, irrespective of their caste, creed and religion, place of birth, race, color or gender. These fundamental rights include Right to

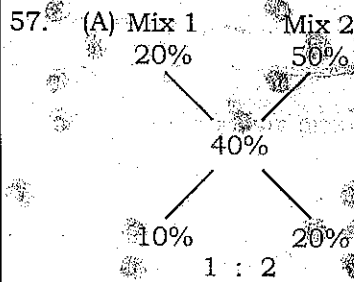
Equality, Right to Freedom, Right to Freedom of Religion, Cultural and Education Rights, Right against Exploitation, Right to Constitutional Remedies, etc.

48. (B) Frequency modulation: It is a process in which the frequency of the carrier is varied in accordance with the instantaneous value of modulating voltage. In tele-communications and signal processing, frequency modulation (FM) conveys information over a carrier wave by varying its instantaneous frequency. FM is most commonly used for radio and television broadcasting.
50. (B) Keshavan from India has recently won gold at the 2016 Asian Luge Championship in Nagano, Japan. He dominated the event and finished the 2<sup>nd</sup> heat race with a time of 1 minute, 39.962 seconds and top speed of 130.4 km/h to clinch the title. Shiva will take part in the 2017 World Championship in Innsbruck, Austria and will compete in the World Cup circuit in the lead up to the qualification process for the 2018 Olympic Winter Games in Korea.
51. (B) 7, 24, 25 is a Pythagorean triplet. Therefore, the given triangle is a right angled triangle. In a right-angled triangle, the median to the hypotenuse is half the hypotenuse and is also the circum-radius of the triangle. As the hypotenuse is 25, the circum radius is **12.5**.
52. (A)  $1080 = 2^3 \times 3^3 \times 5$ . For any perfect square, all the powers of the primes have to be even numbers. So, if the factor is of the form  $2^a \times 3^b \times 5^c$ . The values 'a' can take are 0 and 2, b can take are 0 and 2, and c can take the value 0. Totally there are **4 possibilities**. 1, 4, 9, and 36.
53. (C) The servant worked for 9 months instead of 12 months, he should receive  $\frac{9}{12}$  of his annual payment  
Let the price of 1 shirt be ₹ x.  
As the servant receive ₹  $120 + x$  where x is the price of the shirt.  
Now, we have  
$$\frac{3}{4}(200 + x) = 120 + x \Rightarrow 150 + \frac{3x}{4} = 120 + x$$
  
$$\Rightarrow x = 120$$
  
∴ Price of the shirt x = ₹ **120**.

54. (C) Equation of a circle with center  $(a, b)$  and radius  $r$  units is  $(x - a)^2 + (y - b)^2 = r^2$   
 $\therefore$  The equation of this circle  
 $\Rightarrow (x - 3)^2 + (y - 2)^2 = 6^2$   
 $\Rightarrow x^2 - 6x + 9 + y^2 - 4y + 4 = 36$   
 $\Rightarrow x^2 + y^2 - 6x - 4y = 23$

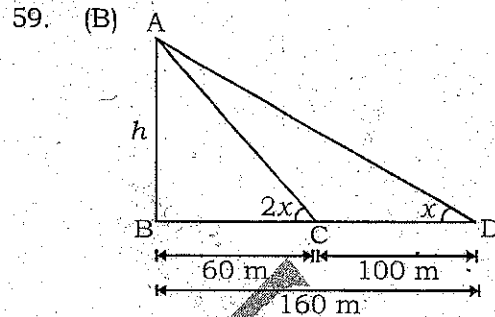
55. (C)  $\therefore 40\% = 142 - 22$   
 $\Rightarrow 40\% = 120$   
 $\Rightarrow 100\% \Rightarrow 300$   
 $\therefore$  Total marks = **300**

56. (C) Let an exterior angle  $A^\circ$ .  
 Then each interior angle will be  $120 + A^\circ$ .  
 We know that in any regular polygon, the sum of an exterior and interior angle is always =  $180^\circ$   
 $\therefore A + 120 + A = 180 \Rightarrow A = 30^\circ$   
 $\therefore$  No. of sides of a polygon =  $\frac{360}{30} = 12$



$\therefore$  Required ratio = 1 : 2

58. (A) Assume the total work to be 600 units.  
 (LCM of all the numbers)  
 Then C's 1 day work = 8 units.  
 $\Rightarrow (A + B + C)$ 's 1 day work = 40 units.  
 A, B, C work together in the first 2 days  
 $\Rightarrow$  Work done in the first 2 days  
 $= 40 \times 2 = 80$  units  
 C alone works during the last 40 days  
 $\Rightarrow$  Work done in the last 40 days  
 $= 40 \times 8 = 320$  units  
 Remaining work =  $600 - (320 + 80)$   
 $= 200$  units  
 This work is done by B and C in 10 days.  
 $\Rightarrow (B + C)$ 's 1 day work = 20 units  
 $\Rightarrow$  A's 1 day work =  $(A + B + C)$ 's 1 day work -  
 $(B + C)$ 's 1 day work = 40 units - 20 units =  
 20 units  
 $\Rightarrow$  A can do the work of 600 units in  $\frac{600}{20}$   
 $= 30$  days.



Let AB be the height of the tower

$$\tan x = \frac{h}{160} \quad \dots(i)$$

$$\tan 2x = \frac{h}{60} \quad \dots(ii)$$

We know that  $\tan 2x = \frac{2 \tan x}{1 - \tan^2 x}$

$$\frac{h}{60} = \frac{2 \cdot \frac{h}{160}}{1 - \left(\frac{h}{160}\right)^2}$$

$$\Rightarrow \frac{h}{60} = \frac{h \times 160 \times 160}{80[(160)^2 - h^2]}$$

$$\Rightarrow (160)^2 - h^2 = 2 \times 60 \times 160$$

$$\Rightarrow 25600 - h^2 = 19200$$

$$\Rightarrow h^2 = 6400$$

$$\Rightarrow h = 80$$

$$\therefore \text{Required length} = 2 \times 80 = \mathbf{160 \text{ m}}$$

60. (C)  $\frac{2x^2 + 5x + 1}{5x} = 3$

$$\frac{x \left( 2x + 5 + \frac{1}{x} \right)}{5x} = 3$$

$$2x + 5 + \frac{1}{x} = 15$$

$$2x + \frac{1}{x} = 10$$

$$\Rightarrow \frac{2x^2 + 1}{x} = 10$$

$$\Rightarrow \frac{2x^2 + 1}{2x} = 5 \Rightarrow \frac{2x}{2x^2 + 1} = \frac{1}{5} = \mathbf{0.2}$$

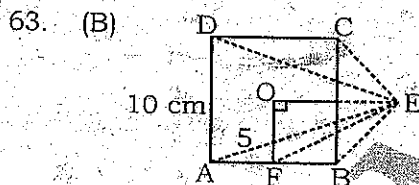
61. (D) 
$$\begin{array}{ccc} & 24.2 & 20.6 \\ & \diagdown & / \\ & 21.8 & \\ & / & \diagdown \\ 24.2 & & 20.6 \\ \Rightarrow 1 & & 3 \end{array}$$

$\therefore$  Required ratio  
= 1 : (3 - 1)  
= 1 : 2

62. (B) Time taken to meet =  $\frac{\text{Distance between them}}{\text{Relative speed}}$

=  $\frac{81}{4+5} = 9$  hrs

$\therefore$  Distance traveled by women =  $9 \times 4$   
= **36 miles.**



In  $\triangle OFE$ ,  
 $EF^2 = OF^2 + OE^2$

$\Rightarrow EF = \sqrt{5^2 + 12^2}$   
 $\Rightarrow EF = 13$  cm

T.S.A =  $\frac{1}{2}$  Perimeter of Base  $\times$  Slant height + Area of base

=  $\frac{1}{2} (4 \times 10) \times 13 + 10 \times 4$   
=  $260 + 100 = 360$  cm<sup>2</sup>

64. (C)  $x + \frac{2}{x} = 1$

$x^2 + 2 = x$  ... (i)

$x - x^2 = 2$  ... (ii)

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

Putting the value from (i) and (ii)

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

65. (B) The radius of the wheel measures 21 cm.  
In one rotation this wheel will cover  
=  $2 \times \pi \times 21 = 132$  cm.  
In an hour, the wheel will cover a distance  
of  $(132 \times 600) \times 60 = 4752000$  cm.  
 $\therefore$  The speed of the car =  $4752000$  cm/hr  
= **47.52 km/hr**

66. (C) Put  $\theta = 45^\circ$ , then  
 $\sin \theta + \cos \theta = \sin 45^\circ + \cos 45^\circ$

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

Now,  $\operatorname{cosec} \theta - \sec \theta = \operatorname{cosec} 45^\circ - \sec 45^\circ$   
=  $\sqrt{2} - \sqrt{2} = 0$

67. (C) The interest earned for the 5 year period  
between the 3rd year and 8th year  
=  $400 - 300 = 100$

As the simple interest earned for a period of  
5 years is 100, interest earned per year = 20  
 $\therefore$  Interest earned for 3 years =  $3 \times 20 = 60$ .  
Hence, initial amount invested = Amount  
after 3 years - Interest for 3 years  
=  $300 - 60 = 240$

Rate of interest =  $\frac{\text{Interest per year}}{\text{Principal invested}} \times 100$

=  $\frac{20}{240} \times 100 = 8.33\%$

68. (C) The total time of journey = 5 hours.  
Let  $x$  hours be the time that I travelled at  
40 km/h

$\therefore 5 - x$  hrs would be time that I travelled at  
60 km/h.

Now, we have

$40x + (5 - x) \times 60 = 240$ , we get

$40x + 300 - 60x = 240$

$\Rightarrow 20x = 60$  or  $x = 3$  hrs

$\therefore$  We can say that the first part of journey  
last for **3 hrs.**

69. (D)  $\frac{\sec \theta + \tan \theta}{\sec \theta - \tan \theta} = \frac{5}{3}$

$\Rightarrow$  Applying componendo and dividendo

$\frac{2 \sec \theta}{2 \tan \theta} = \frac{5+3}{5-3}$

$\Rightarrow \frac{1}{\cos \theta \times \frac{\sin \theta}{\cos \theta}} = 4 \Rightarrow \frac{1}{\sin \theta} = 4 \Rightarrow \sin \theta = \frac{1}{4}$

70. (A) Let the label price be = ₹ 100. The trader  
buys at a discount of 19%.

Hence, his cost =  $100 - 19 = 81$ .

He wants to make a profit of 20%. Hence  
his selling price =  $1.2 (81) = 97.2$

However, he wants to get this ₹ 97.2 after  
providing for a discount of 10%. i.e. he will  
be selling at 90% of his marked price.

Hence, his marked price =  $108$  which is **8% more** than the original label price.

71. (C) Required length = H.C.F. of 700 cm,  
385 cm and 1295 cm = **35 cm**

72. (B)  $(0.04)^{-1.5} = \left(\frac{4}{100}\right)^{-1.5}$   
 $= \left(\frac{1}{25}\right)^{\left(-\frac{3}{2}\right)} = (25)^{\left(\frac{3}{2}\right)} = (5^2)^{\left(\frac{3}{2}\right)}$   
 $= (5)^{2 \times \left(\frac{3}{2}\right)} = 5^3 = \mathbf{125}$

73. (C) Required average  
 $= \frac{250 + 375 + 200 + 450 + 75}{5}$   
 $= \frac{1350}{5} = \mathbf{270}$

74. (A)  $A + B = 375 + 250 = 625$   
 $D + E = 450 + 75 = 525$

$\therefore$  Required % (less) =  $\frac{(625 - 525) \times 100}{625}$

$= \frac{100 \times 100}{625} = \mathbf{16\%}$

75. (C)  $A + E = 250 + 75 = 325$   
 $D = 450$

Required % =  $\frac{450 - 325}{450} \times 100$

$= \frac{125 \times 2}{9} = \frac{250}{9} = \mathbf{27.66\%}$

## MEANINGS IN ALPHABETICAL ORDER

Word	Meaning in English	Meaning in Hindi
Put up with	to tolerate	बर्दाश्त करना
Get along with	stay happily together	मिल-जुलकर साथ रहना
Pull through	to survive	जीवित रहना
Pull down	to destroy	तबाह करना, बर्बाद करना
Acrimony	bitterness or ill feeling	कटुता, रूखापन
Adroit	skilled, clever	दक्ष, निपुण
Cower	to sit down on ground in proper manner	पालथी मारकर बैठना
Pinnacle	on the top, peak	शिखर
Ridge	a long narrow hill top	पर्वत का संकरा ऊंचा भाग
Scornful	feeling or expressing contempt	तिरस्कारपूर्ण
Apocryphal	doubtful on authentication	शंकायुक्त
Dubious	doubtful, suspected	सदिग्ध, संदेहपूर्ण
Canonical	included in the list of sacred books officially accepted as genuine	धर्मवैधानिक
Sapid	having a pleasant taste	मजेदार, स्वादिष्ट
Turbid	unclear	अस्पष्ट
Arid	too dry or barren to support vegetation	बंजर
Vapid	offering nothing that is challenging	नीरस, बेजान
Circumnavigate	sail all the way around	जहाज द्वारा परिभ्रमण करना
Hose	a flexible tube conveying water	पाइप

*Ssc AnsKey on - 13 Jan - 17*

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

**PINNACLE**