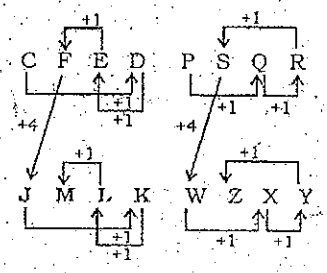
Pinnacle Learning Destination
Plot No.3 Third Floor Main Road
Raghunathpur, Sector 22 -Noida,
Uttar Pradesh
Pin-201301Ph-+91-9555662244

SSC Solution on 24 Nov - 017

1. (B)



2. (A) As, $23^2 + 23 = 552$ Similarly, $26^2 + 26 = 702$

3. (A) As, $\frac{6^3+6^2}{3} = \frac{216+36}{3} = \frac{252}{3} = 84$

Similarly, $\frac{8^3+8^2}{4} = \frac{512+64}{4} = \frac{576}{4} = 144$

4. (B) National fruit of India is Mango and National fruit of New Zealand is Kiwifruit.

5. (B) Except 91, others are prime number.

6. (A) Except (23-48), in other options second number is divisible by sum of the digits of the first number.
2 + 3 = 5 and 48 is not divisible by 5.
3 + 1 = 4 and 52 is divisible by 4.
2 + 5 = 7 and 42 is divisible by 7.
2 + 1 = 3 and 18 is divisible by 3.

7. (B) Except Brigadier, others are related to navy.

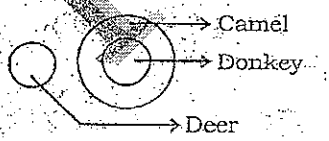
8. (C) Except Guwahati, others are state capitals.

9. (A) Father of Raju's daughter's father → Raju's father.
Hence, the person is the brother of Raju's father.
Therefore, Raju is the nephew of that person.

10. (B) The correct order is : Mars → Jupiter → Saturn → Uranus → Neptune

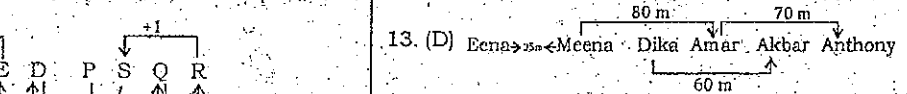
11. (B) Diamond and Graphite are Allotropes of carbon.

12. (B)



1. ✗ 2. ✗ 3. ✓ 4. ✗
Hence, only conclusion (3) follows.

13. (D)



Required distance = 25 + 80 + 60 = 165 m

14. (A) $3 + 1^2 = 4$, $4 + 2^2 = 8$, $8 + 3^2 = 17$,
$17 + 4^2 = 33$, $33 + 5^2 = 58$, $58 + 6^2 = 84$

15. (C) The letters remain the same i.e. ABC and The numbers follow this series :
113, 122, 133, 144, 155.

16. (B) Hence from the below mention block diagram, it is clear that B is the letter which is opposite to face E.

Top face	A	E	F
Bottom face	A	E	C

17. (C) pqrrpq / rrppqr / pqrrpq

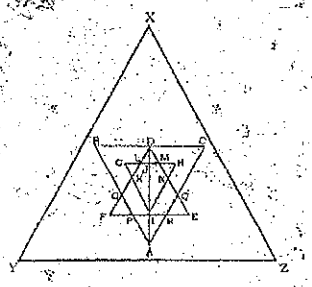
18. (A) $16 \times 7 - 29 = 112 - 29 = 83$
$19 \times 9 - 82 = 171 - 82 = 89$
$24 \times 3 - 15 = 72 - 15 = 57$

19. (B) $\sqrt{36 \times 64} = 6 \times 8 = 48$
and $\sqrt{25 \times 9} = 5 \times 3 = 15$
Therefore, $\sqrt{81 \times 169} = 9 \times 13 = 117$

20. (A) 18 + 23 + 58 = 23 + 48 + 28 = 35 + 34 + 30
The sum in each case = 99.

21. (A) Given: $4 + 3 \times 12 - 3 \div 2$
After interchanging the signs we have,
$= 4 \div 3 - 12 + 3 \times 2$
$= 4 \times 3 - 4 \times 2$
$= 12 - 8 = 4$

22. (C) The figure may be labelled as shown.



Larger triangle is XYZ i.e. 1 in number.
Simple triangles are GLK, DLJ, DJM, HMN, QRE, IRA, IPA and FPO i.e. 8 in number.
Triangles having two components are BDO, CDQ, DLM, PRA, KFI, NEI, HJI, GJI, DKI and DNI i.e. 10 in number.

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Triangles having four components are DIE, DFI, DOA, DQA and GHI i.e. 5 in number.
Triangles having six components are DCA and DBA i.e. 2 in number.
DEF is the only triangle having eight components.
ABC is the only triangle having twelve components.
Thus, there are 1+ 8+10+ 5 +2+1 + 1 = 28 triangles in the figure.

23. (C)
24. (C)
25. (B)

$$\begin{array}{r} 124 \\ \times\ 26 \\ \hline 744 \\ 248 \\ \hline 3224 \end{array}$$

26. (B) Painted Greyware belonged to later Vedic period (1000-600BC). Ajanta paintings belong to the Gupta period. Pahari School came into existence during the Mughal period.
27. (C) The mixing of warm and cold current in the region where planktons food for fishes are found makes the temperature just right for them to survive. The temperature is just right for the growth of fresh food called planktons.
28. (A) Best answer is 1, 2. Because only Inter State Council is a constitutional body under article 263. So option 3 should not be included.
30. (D) Decibel is widely known as a measure of sound pressure level, but it is also used for a wide variety of other measurements in science and engineering. Decibel is commonly used in acoustics to quantify sound levels relative to a 0 dB reference which has been defined as a sound pressure level of .0002 microbar. The noise level of 100 decibel would corresponds to noise from a machine shop.
31. (B) The six elements in column 2 of the Periodic table are called Alkaline Earth Metals. These include Beryllium (Be), Magnesium (Mg), Calcium (Ca), Strontium (Sr), Barium (Ba), and Radium (Ra).
32. (D) Normal body temperature of human is 37° C, but when we convert 37° C into Kelvin it becomes 310 K, because
0° C = 0°C + 273 = 273 K
37° C = 37° + 273 = 310 K
33. (C) The Indian Ocean Rim Association (IORA) member-States has recently finalised MoU for cooperation in Small and Medium-sized Enterprises (SME) sector in New Delhi. Around 29 delegates from 14 IORA attended the 2-day workshop to finalise the MoU. The member countries agreed to have a common MoU to help each other in the development in SMEs in the region. The focus areas of the MoU are to finalise linkages and alliances amongst SMEs, organizations, associations and various institutions engaged in SME development in their countries. The IORA is an international organisation consisting of coastal states bordering the Indian Ocean. It is a regional forum, tripartite in nature, bringing together representatives of Government, Business and Academia, for promoting co-operation and closer interaction among them. The headquarters of the IORA is located at Ebene city, Mauritius.
34. (C) The Bihar government has recently launched a Nasha Mukti campaign to make the state addiction free with formation of over 11,000 kms long human chain across the state. The human chain covered all panchayats of the state and over two crore people participated in this human chain.
35. (A) First schedule contains names of the States and UTs, that's why it should be amended, if a new state is created.
36. (D) Qutbud-din Aibak died after a fall from his horse while playing chaugan (polo) in 1210. He was succeeded by Aram Shah. Qutbud-din Aibak was the founder of first independent Turkish kingdom in Northern India in 1206.
37. (B) Mestizo is a type of person with mixed racial ancestry, especially of mixed European and Indian ancestry.
38. (A) BCD is a binary coded notation in which each of the decimal digits is expressed as a 8-bit binary numeral. For example in binary coded decimal notation 1 is 0001 and 2 is 0010 in pure binary.
41. (C) Xenon is called the 'stranger' gas. This gas is very unreactive and heavier than air, that was why named strange (in Greek it means 'xenon' means strange).
42. (D) Dugong is a large marine mammal. Dugong has a fusiform body with no dorsal fin or hind limbs, instead of possessing paddle. Dugong is heavily dependent on seagrass for subsistence. Dugong bear one calf at a time after an approximately 13 month gestation.

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43. (A) The National Voters' Day is celebrated every year in India on January 25 every year to mark the foundation day of Election Commission of India (ECI). The significance of this day is to encourage youngsters, who have reached the age of 18, of the country to participate in the electoral process, by enrolling or registering themselves in electoral rolls and to exercise their franchise.

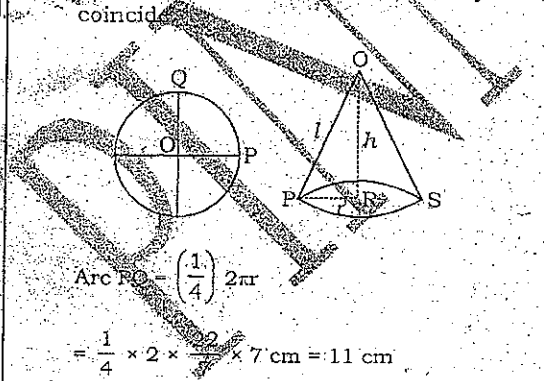
44. (B) Leader : Jhansi - Rani Laxmibai; Lucknow - Begum Hazrat Mehal; Jagdishpur (Bihar)- Kunwar Singh.

45. (B) For proper ecological balance 33% of forest land is recommended, but in India we have only 20.14% of forest coverage.

49. (C) Insulin is a peptide hormone composed of 51 amino acids. Insulin is secreted from Pancreas (Islets of Langerhans).

50. (C) The book "60 Indian Poets" has been authored by Jeet Thayil, which is pure pleasure put together with a poet's love of his craft and its masters. The book spans 55 years of Indian poetry in English and bridged continents and generations, and seeks to expand the definition of 'Indian-ness'.

51. (D) The quadrant POQ of the circle is folded in such a way that the arc PQ forms the base of the cone. Radii OP and OQ of the slant height of the cone and they will coincide.



Arc PQ = $\left(\frac{1}{4}\right) 2\pi r$

$= \frac{1}{4} \times 2 \times \frac{22}{7} \times 7$ cm = 11 cm

Circumference of the base of the cone = Arc PQ.

or, $2\pi r' = 11$ (where r' = radius of the base of the cone)

or, $r' = \frac{11}{2\pi} = \frac{11}{2 \times \frac{22}{7}} = \frac{7}{4}$ cm

Slant height of the cone = OP = radius of the circle

$l = 7$ cm

Height of the cone,

$h = \sqrt{(l)^2 - (r')^2}$

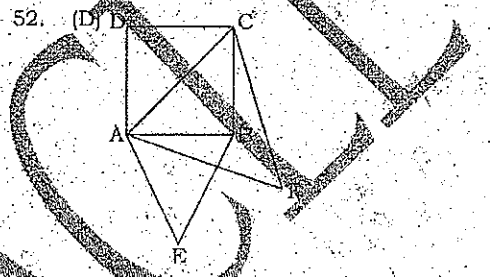
or, $h = \sqrt{(7)^2 - \left(\frac{7}{4}\right)^2} = \frac{7}{4}\sqrt{15}$ cm

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

$= \frac{1}{3} \times \frac{22}{7} \times \left(\frac{7}{4}\right)^2 \times \frac{7}{4}\sqrt{15}$ cm³

$= 21.74$ cm³

52. (D)



$AC^2 = 2AB^2$ (ΔABE and ΔABC are equiangular)

$\Rightarrow \Delta ABE \sim \Delta ABC$

[The ratio of the areas of two similar triangles is equal to the ratio of the square of their corresponding sides]

$\frac{\text{Area of } (\Delta ABE)}{\text{Area of } (\Delta ACE)} = \frac{AB^2}{AC^2} = \frac{AB^2}{2AB^2} = \frac{1}{2} = \mathbf{1:2}$

53. (B) $\angle COB = 360° - (125° + 90°) = 145°$

$\Rightarrow x = \angle CAB = \frac{1}{2}\angle COB = \frac{1}{2} \times 145° = \mathbf{72.5°}$

54. (C) Let the speed of the stream be x mile/hr. Then,

Speed downstream = (10 + x) mile/hr,

Speed upstream = (10 – x) mile/hr

$\therefore \frac{36}{(10+x)} - \frac{36}{(10-x)} = \frac{90}{60}$

$\Rightarrow 72x \times 60 = 90(100 - x^2)$

$\Rightarrow x^2 + 48x - 100 = 0$

$\Rightarrow (x + 50)(x - 2) = 0$

$\Rightarrow x = 2$

∴ The speed of stream = **2 mile/hr**

55. (A) Let the ratio be x : (x + 40)

Then, $\frac{x}{(x+40)} = \frac{2}{7}$

$\Rightarrow 7x = 2x + 80$

$\Rightarrow x = 16$

$\Rightarrow$ Required ratio = **16 : 56**

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56. (A) Let original income = ₹ 100
Then, expenditure = ₹ 75
and savings = ₹ 25
New income = ₹ 120

New expenditure = ₹ $\left(\frac{110}{100}\times 75\right)$ = ₹ $\frac{165}{2}$

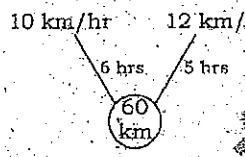
New savings = ₹ $\left(120-\frac{165}{2}\right)$ = ₹ $\frac{75}{2}$

Increase in savings = ₹ $\left(\frac{75}{2}-25\right)$ = ₹ $\frac{25}{2}$

∴ Percent Increase in saving

$=\left(\frac{25}{2}\times\frac{1}{25}\times 100\right)\%$ = **50%**

57. (A) Let the required distance
= LCM of (10, 12) = 60 kms



∴ Difference in time = 6 – 5 = 1 hour
= 60 minutes
Difference in time = 6 – 5 = 12 minutes
⇒ 60 → 12
∴ The required distance = **12 km**

58. (B) B's 1 day's work

$=\left(\frac{1}{12}-\frac{1}{24}\right)=\frac{1}{24}$

Now (A + B)'s 1 day's work

$\left(\frac{1}{24}+\frac{1}{24}\times\frac{1}{2}\right)=\frac{3}{48}=\frac{1}{16}$ [∵ B works for half day only]

So, A and B together will complete the work in **16 days**.

59. (C) Let the original price be ₹ 100
Then, marked price = ₹ 140

Final price = ₹ $\left(\frac{90}{100}\times\frac{90}{100}\times 140\right)$ = ₹ 113.4

∴ Increase in price = (113.4 – 100)% = **13.4%**

60. (C) Volume of the new cube = Sum of volumes of all five cubes

∴ $a^3 = a_1^3 + a_2^3 + a_3^3 + a_4^3 + a_5^3$

$\Rightarrow a = \sqrt[3]{a_1^3+a_2^3+a_3^3+a_4^3+a_5^3}$

$= \sqrt[3]{9^3+6^3+3^3+3^3+1^3}$ cm

$= \sqrt[3]{729+216+27+27+1}$ cm = $\sqrt[3]{1000}$ cm
= 10 cm
∴ Required area = $6a^2 = 6\times 10^2$ = **600 cm²**

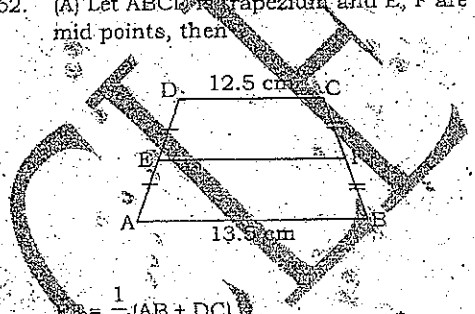
61. (A) Remaining distance = 4 km

and Remaining time = $\left(\frac{1}{3}\times 45\right)$ min

= 15 min = $\frac{1}{4}$ hr.

∴ Required speed = (4 × 4) km/hr
= **16 km/hr**

62. (A) Let ABCD is trapezium and E, F are the mid points, then



$EF = \frac{1}{2}(AB + DC)$

$EF = \frac{13.5+12.5}{2}$ = **13 cm**

63. (D) Here interior angle – exterior angle = 120°

$\frac{(n-2)\times 180}{n}-\frac{360}{n}=120$

$\Rightarrow \frac{1}{n}[(n-2)\times 180-360]=120$

$\Rightarrow \frac{1}{n}[180n-360-360]=120$

$\Rightarrow \frac{1}{n}[180n-720]=120$

$\Rightarrow 180n-720=120n$
$\Rightarrow 60n=720$

$\Rightarrow n=\frac{720}{60}$ = **12**

64. (B) Interest after 10 years at the rate of 5% = ₹ 500

∴ Time = $\frac{\text{Interest}\times 100}{\text{Principal}\times\text{Rate}}$

$=\frac{500\times 100}{1500\times 5}=\frac{20}{3}$ years

= 6 years 8 months
∴ Required time = (10 years + 6 years 8 months)
= **16 years 8 months**

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65. (C) Given $x = \frac{\sqrt{3}}{2}$

$$\frac{\sqrt{1+x}}{1+\sqrt{1+x}} \times \frac{1-\sqrt{1+x}}{1-\sqrt{1+x}} + \frac{\sqrt{1-x}}{1-\sqrt{1-x}} \times \frac{1+\sqrt{1-x}}{1+\sqrt{1-x}}$$

$$= \frac{\sqrt{1+x}-1-x}{1-1-x} + \frac{\sqrt{1-x}+1-x}{1-1+x}$$

$$= \frac{\sqrt{1-x}+1-x}{x} - \frac{\sqrt{1+x}-1-x}{x}$$

$$= \frac{\sqrt{1-x}+1-x-\sqrt{1+x}+1+x}{x}$$

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

$$= \frac{2+\sqrt{1-\frac{\sqrt{3}}{2}}-\sqrt{1+\frac{\sqrt{3}}{2}}}{\frac{\sqrt{3}}{2}}$$

$$= \frac{2+\frac{\sqrt{4-2\sqrt{3}}}{2}-\frac{\sqrt{4+2\sqrt{3}}}{2}}{\frac{\sqrt{3}}{2}}$$

$$= \frac{4+\sqrt{3}-1-\sqrt{3}-1}{\sqrt{3}}$$

$$\therefore \frac{1}{\sqrt{3}}\left(\frac{\sqrt{1+x}}{1+\sqrt{1+x}} + \frac{\sqrt{1-x}}{1-\sqrt{1-x}}\right) = \frac{1}{\sqrt{3}} \times \frac{2}{\sqrt{3}} = \frac{2}{3}$$

66. (B) Product of numbers = $11 \times 385 = 4235$
Let the numbers be $11a$ and $11b$.
$\Rightarrow 11a \times 11b = 4235$
$\Rightarrow ab = 35$
Now, co-primes with product 35 are (1, 35) and (5, 7).
∴ The numbers are $(11 \times 1, 11 \times 35)$ and $(11 \times 5, 11 \times 7)$
Since one number lies between 10 and 70 and the suitable pair is (55, 77)
∴ Required number = **55**.

67. (C) $\because a = \frac{xy}{x+y}$, $b = \frac{xz}{x+z}$ and $c = \frac{yz}{y+z}$

$$\therefore \frac{x+y}{xy} = \frac{1}{a}, \frac{x+z}{xz} = \frac{1}{b}, \frac{y+z}{yz} = \frac{1}{c}$$

$$\Rightarrow \frac{1}{y}+\frac{1}{x} = \frac{1}{a}, \frac{1}{z}+\frac{1}{x} = \frac{1}{b}, \frac{1}{z}+\frac{1}{y} = \frac{1}{c}$$

$$\therefore \left(\frac{1}{y}+\frac{1}{x}\right)+\left(\frac{1}{z}+\frac{1}{x}\right)-\left(\frac{1}{z}+\frac{1}{y}\right) = \frac{1}{a}+\frac{1}{b}-\frac{1}{c}$$

$$\Rightarrow \frac{2}{x} = \frac{bc+ca-ab}{abc}$$

$$\Rightarrow \frac{1}{x} = x^{-1} = \frac{bc+bc-ab}{2abc}$$

68. (C)

	CP	SP
	(100 − Discount)	(100 + Profit)
	(100 − 4)	(100 + 35)
Total number of article	96	135
	16	15
	6	9
Ratio of cost of 1 article	2	3

69. (B) $16\,\text{cosec}^2\theta + 9\sin^2\theta = \frac{16}{\sin^2\theta} + 9\sin^2\theta$

$$= \left(\frac{4}{\sin\theta}\right)^2 + (3\sin\theta)^2$$

$a^2 + b^2 = (a-b)^2 + 2ab$

$$= \left(\frac{4}{\sin\theta} - 3\sin\theta\right)^2 + 2 \cdot \frac{4}{\sin\theta} \cdot 3\sin\theta$$

$= 0 + 24 = 24$

[∵ For the least value $\left(\frac{2-3\sin^2\theta}{\sin\theta}\right)^2 = 0$]

∴ The least value = **24**

70. (C) Let the highest score be x runs.
Then, lowest score = $(x - 150)$ runs.
Then, $(50 \times 40) - [x + (x - 150)] = 38 \times 46$
$\Rightarrow 2x = 2000 + 150 - 1748$
$\Rightarrow 2x = 402$
$\Rightarrow x = 201$
The lowest score = $201 - 150 =$ **51 runs**

71. (B) Let cost price = ₹ 100

Then, $\frac{2}{5}$ of (Marked Price) = ₹ 70

$\Rightarrow$ Marked Price = ₹ $\left(\frac{70 \times 5}{2}\right)$ = ₹ 175

∴ Required ratio = 175 : 100 = **7 : 4**

72. (C) CD || AB
∴ ∠AED = ∠PDC = 34° (corresponding angle)
∴ ∠DEF = 180° − 84° − 42° = 54°
∵ QD || EF
∴ ∠PDQ = ∠DEF = **54°** (corresponding angle)

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73. (B) Required percentage

$$= \left[\frac{(850+920+890+980+1350)}{(7400+8450+7800+8700+9800)} \times 100\right]\%$$

$$= \left(\frac{4990}{42150} \times 100\right)\% = 11.83\%$$

74. (D) Required percentage

$$= \left[\frac{(840+1050+920+980+1020)}{(7500+9200+8450+9200+8800)} \times 100\right]\%$$

$$= \left(\frac{4810}{43150} \times 100\right)\% = 11.14\%$$

75. (D) Required Average

$$= \frac{8100+9500+8700+9700+8950}{5}$$

$$= \frac{44950}{5} = 8990$$

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MEANINGS IN ALPHABETICAL ORDER

Word	Meaning in English	Meaning in Hindi
Crude	Not yet processed or refined	अपरिष्कृत
Savage	Fierce; violent, and uncontrolled.	जंगली, बर्बर
Detest	Dislike intensely.	घृणा करना
Reverential	respectful	सम्मानजनक
Bellhop	An attendant in a hotel who performs services such as carrying guests' luggage.	होटल का सेवक
Taboo	An inhibition or ban resulting from social custom or emotional aversion	निषेध, वर्जित कर्म
Misty	full of mist	धुंध, कोहरा
Constriction	Compression	संकुचन
Contraction	The process of becoming smaller.	सिकुड़न
Aggressive	ready or likely to attack or confront; hostile	आक्रामक
Lordy	used to express surprise or dismay	आश्चर्य या दुख प्रकट करने की अभिव्यक्ति वाला एक शब्द
Precise	exact or accurate	सटीक, यथावत्
Set out	To present ideas, facts, etc. in an organized way	सजाकर वर्णन करना
empirically	By trial and error	अनुभवपूर्वक
Ascribe	Attribute something to a cause	संबंध बताना

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SSC Answer Key on 24 Nov - 017

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