UP SI MOCK TEST – 39 (SOLUTION)

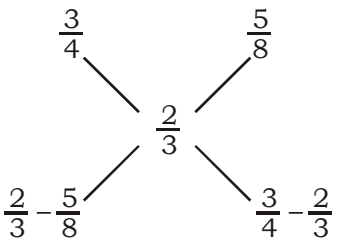
81. (B) Diff^n → $1\left(\frac{4}{5}\right), 1\left(\frac{6}{7}\right), 1\left(\frac{8}{9}\right), 1\left(\frac{11}{12}\right)$
↓ ↓ ↓ ↓
4, 6, 8, 11 ⟶ 4 < 6 < 8 < 11

The smallest fraction is $\frac{4}{5}$.

82. (A) The LCM of 200, 300, 360, 450 = 1800 sec.
It means all runners completed their rounds 1800 sec. or 30 min.

83. (B) Average marks = 40
Sum of marks = 40 × 5 = 200
After, replacement, sum of new observation = 200 – 74 + 38 = 164
Average of new observation = $\frac{164}{5}$ = 32.8

84. (A)

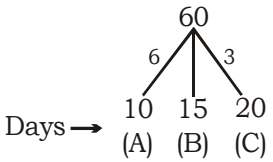


$= \frac{1}{24}$ $\frac{1}{12}$

Required ratio = $\frac{1}{24} : \frac{1}{12}$ = 1 : 2

85. (D) $\frac{M_1D_1T_1}{W_1} = \frac{M_2D_2T_2}{W_2}$
So, let number of burners be 'x'.
$\Rightarrow \frac{6\times6\times8}{450} = \frac{x\times10\times5}{625}$
$\Rightarrow$ After solving
$\Rightarrow x = 8$

86. (D)

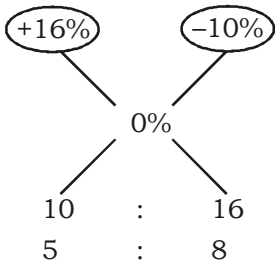


(A + B) work for two days
(6 + 3) × 2 days = 18 units
Work let: (60 – 18) = 42 units
Now, A replaced by B
(B + C) one day work = 4 + 3
(B + C) Compute remaining work in
$= \frac{42}{7}$ = 6 days
Total days = 6 + 2 = 8 days

87. (A) $4^{25} + 4^{26} + 4^{27} + 4^{28}$
$= 4^{25}(1 + 4^1 + 4^2 + 4^3)$
$= 4^{25}(85)$ is divisible by 17

88. (C) CP of 6 books = ₹4
CP of 1 book = ₹$\frac{2}{3}$
SP of 4 books = ₹6
SP of 1 book = ₹$\frac{3}{2}$
gain% = $\frac{\left(\frac{3}{2}-\frac{2}{3}\right)}{\frac{2}{3}} \times 100$
= 125%

89. (D)



SP of article was sell on loss
$= \frac{8\times520}{13}$ = 200

90. (B) Let the price be x
After 20% reduction price = $\left(x-\frac{x}{5}\right)$
$\Rightarrow = \frac{4x}{5} = 162$
$\Rightarrow x = \frac{405}{2}$
Then, one can buy two more dozens with 20% reduced
$= \frac{405}{2} - 162 = \frac{81}{2}$
Per dozen = $\frac{\frac{81}{2}}{2}$ = ₹81

91. (B) Let distance is $(2x + 175)$ km
ATQ.,

$$\frac{\text{Speed of Varanasi train}}{\text{Speed of New Delhi train}}$$

$$= \frac{\text{Dist. of Varanasi train}}{\text{Dist of New Delhi train}}$$

$$\Rightarrow \frac{50}{10} = \frac{2x+175}{n}$$

$\Rightarrow x = 58.33$
Total distance = $(2x + 175)$
= 291.66 km

92. (C) Given:- SP of a raincoat = ₹40
%P = 25%

$$\text{CP of a raincoat} = \frac{40\times100}{125} = ₹32$$

During the clearance sale, S.P of a raincoat.

$$= \frac{40\times85}{100} = ₹34$$

$$\% \text{ P} = \frac{34-32}{32}\times100 = 6.25\%$$

93. (C) Let efficiency of Kaushal = A
Efficiency of Munchun = B
$(A + B) \times 3 = (2A + B) \times 2$
$3A + 3B = 4A + 2B$
$A = B$

$$\frac{A}{B} = \frac{1}{1}$$

Total work = (1 + 1) 3 = 6
Efficiency of A = 1
Kaushal can do the work in 6 hrs

94. (B) $$\frac{3+\sqrt{6}}{5\sqrt{3}-2\sqrt{12}-\sqrt{32}+\sqrt{50}}$$

$$= \frac{3+\sqrt{6}}{5\sqrt{3}-4\sqrt{3}-4\sqrt{2}+5\sqrt{2}}$$

$$= \frac{3+\sqrt{6}}{\sqrt{3}+\sqrt{2}}$$

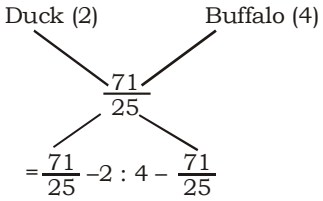
$$= \left(3+\sqrt{2}\right)\left(\sqrt{3}-\sqrt{2}\right) \text{ After Rationalise}$$

$$= 3\sqrt{3} - 2\sqrt{3}$$

$$= \sqrt{3}$$

95. (D) Heads count = 50
legs count = 142
Average legs count for per head

$$= \frac{142}{50} = \frac{71}{25}$$



= 21 : 29

$$\text{Number of buffalo} = 50 \times \frac{29}{50} = 29$$

96. (C) Speed at upstream = $(x - y)$ km/h
speed downstream = $((x + y)$ km/h
where, $x \rightarrow$ speed of boat in still water and $y \rightarrow$ speed of stream

$$\text{time taken} = \frac{63}{13-4} = 7 \text{ hours.}$$

97. (A) Let number of boys be 300
No. of girls = 200

$$\text{Boys holding scholarship} = \frac{20}{100}\times300$$

= 60

$$\text{Girls holding scholarship} = \frac{25}{100}\times300$$

= 60

$$\text{Girls holding scholarship} = \frac{25}{100}\times200$$

Total students holding scholarship = 110
% of students not holding scholarship

$$= \frac{500-110}{500}\times100 = 78\%$$

98. (B) $100x \longrightarrow 100 \times 62 = 6200$

$\downarrow$

$90x$

$47x$ $\quad$ $43x$-60

Total vote
$47x - (43x - 60) = 308$
$\Rightarrow 47x - (43x - 60) = 308$
$\Rightarrow x = 62$
Total number of voters in the voter list = 6200

99. (D) P = principal

$$\text{Sum} = S = P\left(1+\frac{r}{100}\right)^2 = 1.448$$

$$\Rightarrow 1 + 1 + \frac{r}{100} = 1.2$$

$\Rightarrow r = 20\%$

100. (A) ATQ.,

$\Rightarrow \pi r_1^2 h_1 = 3\pi r_1^2 h_2$

$\Rightarrow 9x = 12 \Rightarrow x = \frac{4}{3}$

101. (D) If $x + \frac{1}{x} = 1$

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

Then, $\frac{2x^2}{x^4+1} = \frac{2}{x^2 + \frac{1}{x^2}} = -2$

102. (C) SI = $\frac{P \times R \times T}{100}$ = ₹36000

Total pocket money
= 6 × 2500 = ₹15000
Total expends of trust
= 6 × 500 = ₹3000
Total expenses = ₹18000
Amount to be received by the boy
= ₹(100000 + 36000 – 18000)
= ₹118000

103. (C) Aman : Samanth : Rachit
= (40000 × 24) : (60000 × 18) : (50000 × 15)
= (96 : 198 : 75) = 32 : 36 : 25
Hence, their profit ratio = 32 : 36 : 25

104. (A) A : P = 3 : 7 ×6
P : P' = 6 : 5 ×7
A : P : P' = 18 : 42 : 35
The amount to money received by Pramod (P) = $33630 \times \frac{42}{95}$
= ₹14,868

105. (D) Let each installment be x
ATQ.,

$\left(x + \frac{x \times 5 \times 1}{100}\right) + \left(x + \frac{x \times 5 \times 2}{100}\right) + \left(x + \frac{x \times 5 \times 3}{100}\right) + x = 12900$

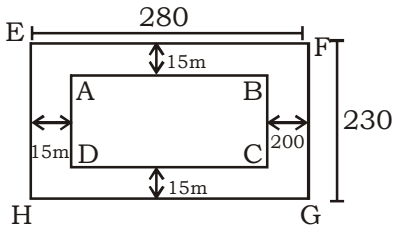
$\Rightarrow \left(\frac{105x}{100}\right) + \left(\frac{100x + 10x}{100}\right) + \left(\frac{115x}{100}\right) + x = 12900$

$\Rightarrow \frac{21x}{20} + \frac{11x}{10} + \frac{23x}{20} + x = 1290$

$\Rightarrow \frac{86x}{20} = 12900$

$\Rightarrow x = 3000$

106. (B)



Area of rectangle ABCD
= 250 × 200
= 50000 m²
Path is 15 m wide on each side then
EF = 15 + AB + 15 = 280
Similarly, EH = 15 + AD + 15 = 230
Now, area of EFGH = 230 × 280
= 64,400 m²
Area of path = 64,400 – 5000
= 14,400 m²

107. (A) M : H = 3 : 2 ×3
H : S = 3 : 2 ×2
M : H : S = 9 : 6 : 4
The numbers of runs scored by M in the maths.

= 285 × $\frac{9}{19}$ = 135

108. (C)

Passengers	Weight	Total weight
16 ×	80	= 1280
20 ×	86	= 1720

Weight of 4 Boys = 440

Average weight of 4 boys = $\frac{440}{4}$ = 110 kg

109. (D) Unit digit of $252^{126} + 244^{152}$ = 4 + 4 = 8
Hence the remainder = 8

100. (B) $\left[\frac{13}{4} \div \left\{\frac{5}{4} - \frac{1}{2}\left(\frac{5}{2} - \frac{3-2}{12}\right)\right\}\right] \div \frac{13}{6}$

$= \left[\frac{13}{4} \div \left\{\frac{5}{4} - \frac{1}{2} \times \frac{29}{12}\right\}\right] \div \frac{13}{6}$

$= \left[\frac{13}{4} \div \left\{\frac{30-29}{24}\right\}\right] \div \frac{13}{6}$

$= \left[\frac{13}{4} \div \frac{1}{24}\right] \div \frac{13}{6}$

$= \left[\frac{13}{4} \times 24\right] \div \frac{13}{6}$

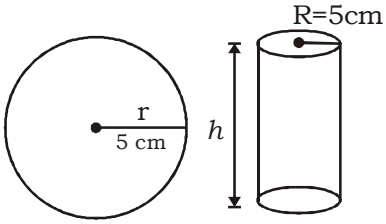
$= 13 \times 6 \times \frac{6}{13}$

= 36

111. (B) P = ₹250
$R_1 = 4\%$, $R_2 = 8\%$
Amount after 1st year
$= 250\left(1+\frac{4}{100}\right) = ₹150$
Amount after IInd years
$= 260\left(1+\frac{8}{100}\right)$
$= ₹280.80$

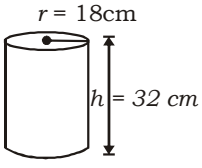
112. (C) Part filled in 2 hrs $= \frac{2}{6} = \frac{1}{3}$
Remaining part $= \frac{2}{3}$
(x = y) is 7 hours work $= \frac{2}{3}$
So, (x + y) is 1 hr work $= \frac{2}{21}$
There for Z's 1 hr is work
=
$\left[(x+y+z)\text{'s 1hr}\right]\left[(x+y)\text{'s 1hr work}\right]$
$= \left(\frac{1}{6}-\frac{2}{21}\right) = \frac{1}{14}$
Z alone can fill the tank in 14 hours.

113. (A)

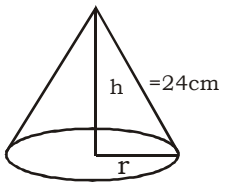


Volume of the solid sphere
$= \frac{4}{3}\pi r^3$
$= \frac{4}{3}\pi (5)^3$
ATQ,
$\Rightarrow 5 \times 5 \times h = \frac{4}{3} \times 5 \times 5 \times 5$
$\Rightarrow h = \frac{20}{3}$ cm

114. (C)



Volume of Cylindrical container
$= \pi r^2 h$
$= \pi(18)^2\ 32$
Again, Volume of conical heap



$= \frac{1}{3}\pi r^2 h$
$= \frac{1}{3}\pi r^2 2y$
$= 8\ \pi r^2$
Now, Volume of cylindrical container = volume of conical heap
$\Rightarrow \pi(18)^2\ 32 = 8\pi r^2$
$\Rightarrow r^2 = (36)^2$
$\Rightarrow$ r = 36 cm

115. (D) $\because$ The shadow is 130 cm the actual height is 169 cm
$\therefore$ actual height 1 cm — $\frac{169}{130}$
$\therefore$ actual height 420 cm — $\frac{169}{130} \times 420$
= 546 cm

116. (C) Let the amount of Royalty to be paid for these books be ₹ r
then, 20 : 15 = 30600 : r
$\Rightarrow$ r = ₹22,950

117. (C) Central age corresponding to royalty
= (15% of 360)° = 54°

118. (B) Marked price of the book = 120% of CP
Cost of paper = 25% of CP
Let the cost of paper for a single book be ₹n
then, 120 : 25 = 180 : h
$\Rightarrow$ h = ₹37.50

119. (A) For the publisher to earn a profit of 25%
SP = 125% SP = 125% of CP
Also, transporation cost = 10%, of CP
Let the SP of 5500 books be ₹ x
Then, 10 : 125 = 82500 : x
$\Rightarrow$ SP of one book = $₹\frac{1031250}{5500}$ = ₹187.5

120. (D) Printing cost of book = 20% of CP
Royalty on book = 15% of CP
Difference = (20% of CP) – (15% of CP)
= 5% of CP
$\therefore$ Diffn = $\left(\frac{5\%\text{ of CP}}{\text{Printing cos t}} \times 100\right)\% = 25\%$

121. (B) POLIS SROLV MRUGS **PUXJV**
+3 +3

122. (C) $16 \times 12 \div 8 + 13 - 15$

$= \frac{16 \times 12}{8} + 13 - 15$

$= 24 - 2$

$= 22$

123. (C) 380, 188, 92, **48**, 20, 8, 2

$380 \div 2 - 2 = 188$

$188 \div 2 - 2 = 92$

$92 \div 2 - 2 = \mathbf{44}$

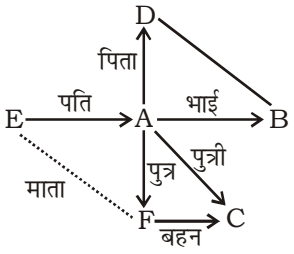
$44 \div 2 - 2 = 20$

$20 \div 2 - 2 = 8$

$8 \div 2 - 2 = 2$

दी गयी शृंखला में 48 की जगह 44 होना चाहिए। 48 गलत है।

124. (B)



दिये गये चित्र से स्पष्ट है कि माता E है।

125. (B) अंगेजी वर्णमाला में कुल 11 (A, H, I, M, O, T, U, V, W, X, Y) अक्षर दर्पण में देखने पर समान दिखाई देंगें।

126. (B)

127. (A) दिखाई गई आकृति में आयतों की संख्या 10 है।

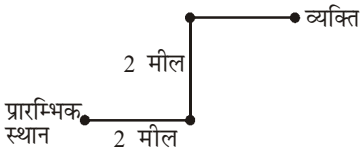
128. (C) 9, 12, 15 का लघुत्तम समापवर्त्य = 180

अत: तीनों घण्टियाँ एक साथ 180 मिनट बाद अर्थात्

= 8 : 00 + 3 : 00

= 11 : 00 पूर्वाहन पर बजेंगीं।

129. (A)



दिशा आरेख से स्पष्ट है कि व्यक्ति अंत में पूर्व दिशा की ओर जा रहा है।

130. (A) बायें ⟶ ⟵ दायें

राम श्याम

10 ——— 5

15 ——— 10

पंक्ति में कुल छात्रों की संख्या = 15 + 5 – 1 = 19

परिवर्तन के बाद श्याम का दायें से स्थान = 19+1–10वें

131. (B) $A \xrightarrow{+3} D \xrightarrow{+3} G$

$D \xrightarrow{+5} I \xrightarrow{+5} N$

$I \xrightarrow{+7} P \xrightarrow{+7} W$

132. (C) जिस प्रकार,

$\frac{32-2}{2} = 15$ तथा $\frac{56-2}{2} = 27$

तथा $\frac{86-2}{2} = 42$ है उसी प्रकार $\frac{74-2}{2} = 36$ होना चाहिए तथा जो नहीं है। अत: विकल्प (D) शेष अन्य विकल्प समूहों से भिन्न है।

133. (D) जिस प्रकार,

9 + 3 + 13 = 25

तथा, 10 + 14 + 1 = 25

उसी प्रकार 6 + 8 + ? = 25

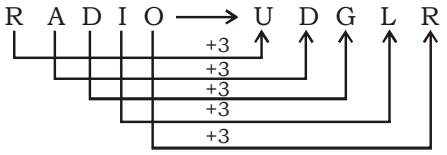
? = 25 – 14 = 11

134. (C) घड़ी की सुईयाँ प्रत्येक $\frac{12}{11}$ घंटे बाद सम्पाती होती है।

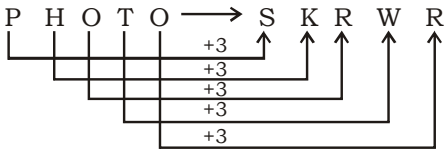
$\because \frac{12}{11}$ घंटे में ..... 1 बार

$\therefore 24$ घंटे में ..... $\frac{11}{12} \times 24 = 22$ बार

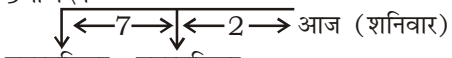
135. (B) जिस प्रकार,



उसी प्रकार,



136. (B) 9वाँ दिन



बृहस्पतिवार बृहस्पतिवार

अत: 9 दिन पहले या 2 दिन पहले बृहपतिवार था इसलिए आज शनिवार है।

137. (B) शृंखला निम्नवत् है

104 117 130 **145** 156 169

+13 +13 +13 +13 +13

अत: स्पष्ट है कि, 145 के स्थान पर 130 + 13 = 143 होगा।

138. (B) A L L

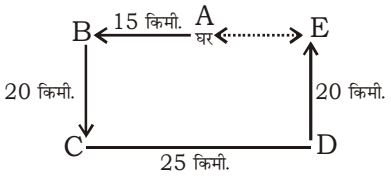
↓ ↓ ↓

1 12 12

$\Rightarrow 1 + 12 + 12 = 25$

तथा N O W
↓ ↓ ↓
14 15 23
⇒ 14 + 15 + 23 = 52
उसी प्रकार,
N O N E
↓ ↓ ↓ ↓
14 15 14 5
⇒ 14 + 15 + 14 + 5 = 48

139. (B)



AE = EB – AB
= 25 – 15 = 10 किमी. पूर्व

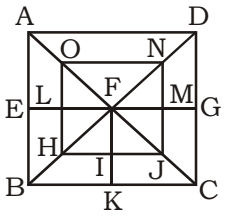
140. (D) 'NATIONAL' शब्द नहीं बनाया जा सकता क्योंकि मूल शब्द 'A' अक्षर सिर्फ एक बार आया है।

141. (A) Let B's age = x years
∴ A's age = x + 4 years
ATQ,
$(x + 4) \times 3 = (x + 4) \times 16$
$\Rightarrow 3x + 12 = x + 20$
$\Rightarrow 2x = 8$
$\Rightarrow x = 4$ years
A's years = x + 4 = 8 years
2 years before
A's age = 8 – 2 = **6 years**
B's age = 4 – 2 = **2 years**

142. (D) जिस प्रकार 'वृत्त' का सम्बन्ध 'परिधि' से है। उसी प्रकार 'वर्ग का सम्बन्ध 'परिमिति' से है।

143. (A) दिया है- F = 4, O = 7, R = 8, C = 2, E = 3, T = 9, I = 6, G = 5
∴ FIRE = 4683

144. (D)



चौकोर (Square) चित्रों की संख्या
= ABCD, EFKB, FGCK, LFHI, HJNO तथा FMIJ
अर्थात- 6

145. (C) दी गयी संख्याओं का क्रम- 3 5 1 **4** 6 2 9 **8** 7
संख्याओं का आरोही क्रम- 1 2 3 **4** 5 6 7 **8** 9
अत: स्पष्ट है कि 4, 8 का क्रम नहीं बदलेगा।

146. (C) लम्बई का क्रम निम्नवत है-
P>R>T>S>Q
अत: स्पष्ट है कि P सबसे अधिक लम्बा है।

147. (C) जिस प्रकार
9 × 10 = 90
11 × 12 = 132
उसी प्रकार,
13 × 14 = 182

148. (A) शृंखला निम्नवत् है-
bcd/**a**b**c**d/abc**d**/a**b**cd/a
अत: रिक्त स्थान पर a, c, d, b होगा।

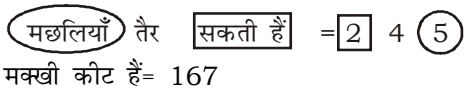
149. (A) 25 A 36 C 2 B 4 R 11
प्रश्नानुसार,
25 + 36 × 2 ÷ 4 –11
= 25 + 18 – 11
= 32

150. (B) D B G A F C E
G is exactly between A and B.

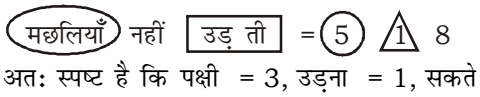
151. (C) 10वाँ दिन = शनिवार
∴ 17. 24 भी शनिवार होगा
∴ 27वाँ दिन = शनिवार + 3 दिन
= मंगलवार

152. (C) 'Paper' means 'Yellow'

153. (A)

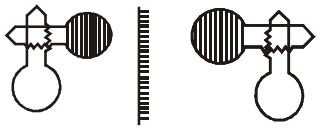


मक्खी कीट हैं= 167

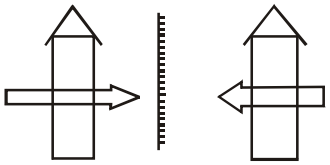


अत: स्पष्ट है कि पक्षी = 3, उड़ना = 1, सकते हैं = 2, मछली = 5, तैरना = 4, तथा नहीं = 8
∴ पक्षी नीं तैरते = 384

154. (B)

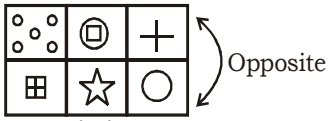


155. (D)



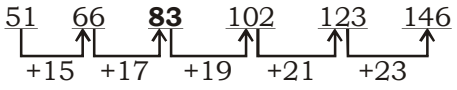
156. (B)

157. (D)



158. (A) आकृतियों में लगातार एक-एक भुजा की वृद्धि हो रही है तथा आकृति 90° धूम रही है। अत: शृंखला की अगली अकृति विकल्प (A) अकृति होगी।

159. (C) शृंखला निम्नवत् है-



160. (A) 41 triangles

UP SI ANSWER KEY - 39

1.	(B)	24.	(B)	47.	(C)	70.	(B)	93.	(C)	116.	(C)	139.	(B)
2.	(B)	25.	(B)	48.	(D)	71.	(B)	94.	(B)	117.	(C)	140.	(D)
3.	(C)	26.	(B)	49.	(D)	72.	(A)	95.	(D)	118.	(B)	141.	(A)
4.	(A)	27.	(B)	50.	(C)	73.	(C)	96.	(C)	119.	(A)	142.	(D)
5.	(B)	28.	(C)	51.	(C)	74.	(A)	97.	(A)	120.	(D)	143.	(A)
6.	(D)	29.	(A)	52.	(B)	75.	(B)	98.	(B)	121.	(B)	144.	(D)
7.	(B)	30.	(B)	53.	(C)	76.	(B)	99.	(D)	122.	(C)	145.	(C)
8.	(C)	31.	(A)	54.	(A)	77.	(D)	100.	(A)	123.	(C)	146.	(C)
9.	(C)	32.	(C)	55.	(C)	78.	(A)	101.	(D)	124.	(B)	147.	(C)
10.	(C)	33.	(C)	56.	(D)	79.	(D)	102.	(C)	125.	(C)	148.	(A)
11.	(B)	34.	(B)	57.	(C)	80.	(C)	103.	(C)	126.	(B)	149.	(A)
12.	(C)	35.	(C)	58.	(A)	81.	(B)	104.	(A)	127.	(A)	150.	(B)
13.	(A)	36.	(B)	59.	(B)	82.	(A)	105.	(D)	128.	(C)	151.	(C)
14.	(B)	37.	(C)	60.	(C)	83.	(B)	106.	(B)	129.	(A)	152.	(C)
15.	(D)	38.	(B)	61.	(B)	84.	(A)	107.	(A)	130.	(A)	153.	(A)
16.	(B)	39.	(A)	62.	(C)	85.	(D)	108.	(C)	131.	(B)	154.	(B)
17.	(B)	40.	(B)	63.	(C)	86.	(D)	109.	(D)	132.	(C)	155.	(D)
18.	(D)	41.	(B)	64.	(D)	87.	(A)	110.	(B)	133.	(D)	156.	(B)
19.	(B)	42.	(A)	65.	(A)	88.	(C)	111.	(B)	134.	(C)	157.	(D)
20.	(A)	43.	(B)	66.	(B)	89.	(D)	112.	(C)	135.	(B)	158.	(A)
21.	(A)	44.	(B)	67.	(A)	90.	(B)	113.	(A)	136.	(B)	159.	(C)
22.	(D)	45.	(C)	68.	(B)	91.	(B)	114.	(C)	137.	(B)	160.	(A)
23.	(B)	46.	(B)	69.	(A)	92.	(C)	115.	(D)	138.	(B)		