UP SI MOCK TEST – 43 (SOLUTION)

81. (C) Average of remaining students

$$= \frac{100 \times 80 - 10 \times 95 - 20 \times 90}{70}$$

$$= \frac{5250}{70} = 75$$

82. (A) A.T.Q.,

$6x = 5\ (5 + x)$

$\Rightarrow x = 25$

$\therefore 6x = 6 \times 25$

$= 150$ litres

83. (C) Volume of bricks in wall

$$= 600 \times 500 \times 50 \times \frac{95}{100}$$

$= 1425000\ cm^3$

Volume of one brick $= 25 \times 12.5 \times 7.5$

$= 2343.75\ cm^3$

$$\therefore \text{Numbers of bricks} = \frac{1425000}{2343.75}$$

$= 6080$

84. (A) Let the cost of 'A' and 'B' objects are $4x$ and $5x$.

Now, New cost of 'A' objects $= 4x + 4x \times \frac{20}{100} = \frac{20x}{5}$

And, new cost of 'B' objects $= 5x + 8$

A.T.Q.,

$$\frac{\frac{20x}{5}}{5x+8} = \frac{4}{5}$$

$$\Rightarrow \frac{24x}{5} \times 5 = (5x + 8) \times 4$$

$\Rightarrow 4x = 32$

$\Rightarrow x = 8$

Difference $= 5x - 4x$

$= 40 - 32$

$= ₹8$

85. (A) $A = 3 \times 97336$

$= ₹292008$

$$\text{Now, } P = \frac{97336}{\left(1+\frac{15}{100}\right)} + \frac{97336}{\left(1+\frac{15}{100}\right)^2} + \frac{97336}{\left(1+\frac{15}{100}\right)^3}$$

$$= 97336\left[\frac{20}{23} + \left(\frac{20}{23}\right)^2 + \left(\frac{20}{23}\right)^3\right]$$

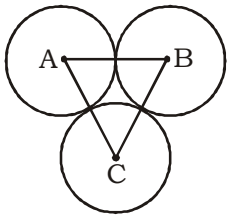
$$= 97336 \times \frac{20}{23} \times \frac{1389}{(23)^2}$$

$= ₹222240$

S.I. $= 292008 - 222240$

$= ₹69768$

86. (C)



Perimeter of ΔABC

$= (5 + 8) + (5 + 7) + (8 + 7)$

$= 13 + 12 + 15$

$= 40$ cm

87. (A) $\text{Profit} = 12 - 10 - \frac{12 \times 10}{100}$

$= 2 - 1.2$

$= 0.8\%$

88. (B) A.T.Q.,

$$\frac{x \times 9 \times 5}{100} = \frac{y \times 7.5 \times 4}{100}$$

$\Rightarrow x \times 45 = y \times 30$

$$\Rightarrow \frac{x}{y} = \frac{30}{45}$$

$$\Rightarrow \frac{x}{y} = \frac{2}{3}$$

89. (A) $$\frac{37}{12} - \left[1 - \frac{3}{4} + \left\{\frac{5}{2} - \left(\frac{3}{2} - \frac{1}{2}\right)\right\}\right]$$

$$= \frac{37}{12} - \left[1 - \frac{3}{4} + \left\{\frac{5}{2} - \frac{7}{6}\right\}\right]$$

$$= \frac{37}{12} - \left[1 - \frac{3}{4} + \frac{16}{12}\right]$$

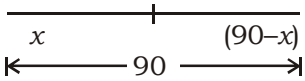
$$= \frac{37}{12} - \left[\frac{12 - 9 + 16}{12}\right]$$

$$= \frac{37}{12} - \frac{19}{12}$$

$$= \frac{18}{12} = \frac{3}{2}$$

$$\therefore \text{Inverse} = \frac{2}{3}$$

90. (D) $A\left(\frac{5}{7}\right)$ $B\left(\frac{2}{7}\right)$



A.T.Q.,

$$\frac{\frac{7x}{5}\times\frac{7(90-x)}{2}}{\frac{7x}{5}+\frac{7(90-x)}{2}} = 35$$

$\Rightarrow x = 30$

Hence, time of A = $\frac{7\times 30}{5}$ = 42 days

91. (A) $A \rightarrow \frac{1}{32}$

$B \rightarrow \frac{1}{48}$

$A \rightarrow \frac{1}{64}$

Let pipe 'B' started x hrs.
Let pipe 'A' started $(112 - x)$ hrs
A.T.Q.,

$$\left(\frac{1}{32}-\frac{1}{64}\right)(112-x)+\left(\frac{1}{48}-\frac{1}{64}\right)x = 1$$

$$\Rightarrow \frac{(3-2)(112-x)}{64}+\frac{(4-3)}{64\times 3} = 1$$

$$\Rightarrow (112-x)+\frac{x}{3} = 64$$

$\Rightarrow 112 \times 3 - 3x + x = 64 \times 3$
$\Rightarrow 2x = 112 \times 3 - 64 \times 3$

$$\Rightarrow x = \frac{144}{2}$$

$\Rightarrow x = 72$
Hence, pipe 'B' started in 72 hrs.

92. (C) Let the present age of Rahman be x years.
A.T.Q.,

$$\frac{1}{(x-3)}+\frac{1}{(x-5)} = \frac{1}{3}$$

$$\Rightarrow \frac{x+5+x-3}{(x-3)(x-5)} = \frac{1}{3}$$

$\Rightarrow 6x + 6 = x^2 + 5x - 3x - 15$
$\Rightarrow x^2 - 4x - 21 = 0$
$\Rightarrow (x - 7)(x + 3) = 0$
$\Rightarrow x = 7$ years

93. (D) Total S.P. = $2025 \times \frac{1}{5} \times \frac{120}{100} + 2025 \times \frac{4}{5} \times \frac{105}{100}$ = 486 + 1701
= ₹2187

$$\% \text{ P} = \frac{2187-2025}{2025}\times 100$$

= 8%

94. (A) Difference = $\frac{P\times r^2}{(100)^2}\left(\frac{r}{100}+3\right)$

$$\Rightarrow 15.25 = \frac{P\times 5^2}{(100)^2}\left(\frac{5}{100}+3\right)$$

$$\Rightarrow 15.25 = \frac{P\times 1}{400}\left(\frac{305}{100}\right)$$

$$\Rightarrow 15.25 = \frac{15.25\times 400\times 100}{305}$$

$\Rightarrow$ P = ₹2000

95. (C) Let the speed of train be 'x' km/h and length of train be 'y' m.
A.T.Q.,

$$(x-3)\times\frac{5}{18} = \frac{y}{10}$$

$\Rightarrow 50x - 150 = 18y$
$\Rightarrow 50x - 9y = 75$ ...(i)

and, $(x-5)\times\frac{5}{18} = \frac{y}{11}$

$\Rightarrow 55x - 18y = 18y$
$\Rightarrow 55x - 18y = 275$ ...(ii)
After solving eq. (i) and (ii)
x = 25 km/hr

96. (B) Total distance travelled by
Sonu = $40 \times \frac{7}{2} + 48 \times \frac{5}{2}$
= 140 + 120
= 260 km
Let the total distance be x.
A.T.Q.,

$$x\times\frac{4}{5} = 260$$

$\Rightarrow x$ = 325 km
Remaining distance = 325 – 260
= 65 km

Remaining speed = $\frac{65}{31}\times 20$
= ≅ 40 km/hr

97. (C) Let list price = ₹x

C.P. = $x - x \times \frac{20}{100} = ₹ \frac{4x}{5}$

Let MP = ₹y

A.T.Q.,

$\Rightarrow y \times \frac{80}{100} \times \frac{100}{125} = \frac{4x}{5}$

$\Rightarrow y = \frac{125}{100}x$

$\Rightarrow y = 125\%$ of x

98. (C) Let income of the family be $2x$ and $3x$ and expenses of the family be $5y$ and $9y$

A.T.Q.,

$3x = 4.5$

$\Rightarrow x = 1.5$

So, $2x = 3$ and $5y = 2.4$

$\Rightarrow 9y = \frac{2.4}{5} \times 9 = 4.32$

The ratio of saving

$= \frac{2x - 5y}{3x - 9y} = \frac{3 - 2.5}{4.5 - 4.32} = 10 : 3$

99. (D) Let the base of parallelogram be x and height 'h',

And, base of the triangle = $\frac{x}{3}$ and height = h_2

A.T.Q,

$\frac{1}{2} \times \frac{x}{3} \times h_2 = x \times h_1$

$\Rightarrow \frac{h_2}{h_1} = \frac{6}{1} \Rightarrow h_2 : h_1 = 6 : 1$

100. (D) Let A, B and C three numbers

A	B	C
75	80	100

$\% = \frac{75}{80} \times 100$

$= 93.75\%$

101. (D) Area of total figures

= Area of square + 4 area of semicircles

$= 8^2 + 4\left[\frac{1}{2} \times \pi \times \left(\frac{8}{2}\right)^2\right]$

$= 64 + 32\pi$

$\Rightarrow 32\ (2 + \pi)\ \text{cm}^2$

102. (B) Number = ${}^4P_4 - {}^3P_3$

$= \lfloor 4 - \lfloor 3$

$= 24 - 6$

$= 18$

103. (A) The quantity of milk in 729 Litres mixtures

$= \frac{7}{9} \times 729$

$= 567$ litres

The quantity of water = (729 – 567)

= 162 litres

Let quantity of water mixes then the ratio becomes 7 : 3.

A.T.Q.,

$\frac{567}{162 + x} = \frac{7}{3}$

$\Rightarrow x = 81$ litres

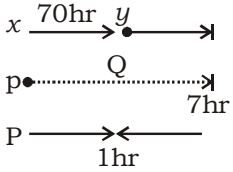
104. (A) C.P. = $\frac{100}{110} \times 181$

= ₹810

M.P. = $\left(\frac{100}{100 - 10}\right) \times 810$

= ₹900

105. (A)



Let the speed of 'P' and 'Q' x km/hr and y km/hr.

A.T.Q.,

$\frac{70}{x + y} = 1$ ...(i)

Now,

The distance travelled by 'P' in 7 hrs in same direction – the distance travelled by Q in 7 hrs = 70

$\Rightarrow 7x - 7y = 70$

$\Rightarrow x - y = 10$ ...(ii)

After solving eqn. (i) and (ii)

$x = 40$ km/hr

$y = 30$ km/h

Then, P : Q = 4 : 3

106. (D) Radius of circumcircle = $\frac{14\sqrt{3}}{\sqrt{3}} = 14$ cm

Area of circumcircle = $\frac{22}{7} \times 14 \times 14$

$= 616\ \text{cm}^2$.

107. (D)

A	B	C
x	x–5	x–9

$\therefore \frac{x(x-5)}{x + (x-5)} = x - 9$ ...(i)

By option

$x = 5$

$\therefore$ Time taken by 1st tank = 15 hrs

108. (B) First five even number = 2, 4, 8, 10
HCF = 2
First five odd number = 1, 3, 5, 7, 9
HCF = 1
$\therefore$ Product = 2 × 1
= 2.

109. (B) Distance between school to home

$$= \frac{uv \times (t_z + t_1)}{(v - u)} \text{ km}$$

$$= \frac{\frac{5}{2} \times \frac{45}{14}\left(\frac{6}{60} + \frac{6}{60}\right)}{\frac{45}{14} - \frac{5}{2}}$$

$$= \frac{9}{4} \text{ km.}$$

110. (A)

	Rahul	Shyam
T →	20	25
E →	5	4

100 (total work)

5 (R + S) = 5 (5 + 4)
Remaining work = 100 – 45 = 55 units

$\therefore$ Rahul does the remaining work = $\frac{35}{5}$
= 11 days

111. (C) Let $\frac{x}{6} = \frac{y-3}{8} = \frac{z-5}{12} = K$
Then, $x = 6K$, $y = 8K + 3$, $z = 12K + 5$
$x + y + z = 21$
$\therefore$ 6K = 8K + 3 + 12K + 5 = 21
$\Rightarrow$ 26K = 13

$\Rightarrow K = \frac{1}{2}$

Then,
$y = 7$, $z = 11$
$\therefore yz = 77$

112. (C) $\left(1 - \frac{1}{2}\right) + \left(\frac{1}{2} - \frac{1}{3}\right) + \left(\frac{1}{3} - \frac{1}{4}\right) + \ldots\ldots$

$$+ \left\{\frac{1}{n} - \frac{1}{n+1}\right\}$$

$$= \left[1 - \frac{1}{(n+1)}\right] = \frac{(n+1-1)}{(n+1)} = \frac{n}{n+1}$$

113. (D) (32 –20)% $\Rightarrow$ (30 + 42)

10% $\Rightarrow \frac{72}{6} \times 100 = 600$

Minimum marks = $600 \times \frac{20}{100} + 30$

Result % = $\frac{150}{600} \times 100\%$
= 25%

114. (B) % Increase = $50 - 20 - \frac{50 \times 20}{100}$
= 20%

115. (C) The average of monthly salary of remaining men

$$= \frac{12 \times 1540 - 1430}{(12 - 1)}$$

$$= \frac{17050}{11} = ₹\ 1550$$

116. (D) [(10% of 4.75) – (8% of 4.75)]
= (2% of 4.75)
= ₹ 0.095 lakhs
= ₹ 9500

117. (D) Let the amounts invested in 2018 in Companies Reliance Pvt. Ltd and Tata Steel Pvt. Ltd be ₹ $8x$ and ₹ $9x$ respectively.
Then, interest received after one year from Company Reliance Pvt. Ltd
= ₹ (6% of $8x$)
= ₹ $\frac{48}{100}x$
and, interest received after one year from Company Tata Steel Pvt. Ltd
= ₹ (4% of $9x$)
= ₹ $\frac{36}{100}x$

Required ratio = $\frac{\left(\frac{48}{100}x\right)}{\left(\frac{36}{100}x\right)} = \frac{4}{3}$

118. (D) Let ₹ x lakhs be invested in Company Reliance Pvt. Ltd in 2016, the amount invested in Company Tata Steel Pvt. Ltd in 2016 = ₹ $(30 - x)$ lakhs
Total interest received from the two companies after 1 year
= ₹ [(7.5% of x) + {9% of $(30 - x)$}] lakhs
= ₹ $\left[2.7 - \left(\frac{1.5x}{100}\right)\right]$ lakhs

$\therefore \left[2.7 - \left(\frac{1.5x}{100}\right)\right] = 2.43 \Rightarrow x = 18$

119. (C) Amount received from Company Reliance Pvt. Ltd after one year (i.e., in 2015) on investing ₹ 12 lakhs in it.
= ₹ [12 + (8% of 12)] lakhs
= ₹ 12.96 lakhs

Amount received from Company Reliance Pvt. Ltd after one year on investing ₹ 12.96 lakhs in the year 2015

= ₹ [12.96 + (10% of 12.96)] lakhs

= ₹ 14.256

Amount received on investment during the period of two years

= ₹ (14.256 – 12) lakhs

= ₹ 2.256 lakhs

= ₹ 2,25,600

120. (B) Amount received from Company Tata Steel Pvt. Ltd after one year on investment of ₹ 5 lakhs in the year 2012

= ₹ [5 + (6.5% of 5)] lakhs

= ₹ 5.325 lakhs

Amount received from Company Reliance after one year on investment of ₹ 5.325 lakhs in the year 2013

= ₹ [5.325 + (9% of 5.325)] lakhs

= ₹ 5.80425 lakhs

= ₹ 5,80,425

121. (C) जिस प्रकार स्पेन का राष्ट्रीय खेल फुटबॉल है, ठीक उसी प्रकार कनाडा का राष्ट्रीय खेल **आईस हॉकी** है।

122. (D) जिस प्रकार गोदान का रचयिता मुंशी प्रेमचन्द्र है, उसी प्रकार यंग इंडिया का रचयिता **महात्मा गाँधी** हैं।

123. (C) जिस प्रकार, M + W – 2 = 13 + 23 – 2 = 34
उसी प्रकार, P + X – 5 = 16 + 24 – 5 = **35**

124. (C) जिस प्रकार, $(7)^3 = 7 - 1 = 6$
उसी प्रकार, $(5)^3 = 5 - 1 =$ **4**

125. (D) ज्योतिपुंज तथा इक्जाम वॉरियरस पुस्तक दोनों के रचयिता नरेन्द्र मोदी हैं, लेकिन भगवद् गीता पुस्तक का रचयिता **कृष्ण द्वैपायन** है।

126. (D) जिस प्रकार, 11+6 = 17, 8+5 = 13, 5+4 = 9
उसी प्रकार, 1 + 3 = **4** एक सम संख्या है बाकी सभी विषम संख्या है।

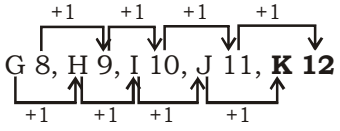
127. (B) 'JKL' लगातार वर्णमाला है।

128. (A) जिस प्रकार, $5^3 + 4^2 = 141$, $6^3 + 2^2 = 220$
उसी प्रकार, $7^3 + 3^2 =$ **352**

129. (B) जिस प्रकार, $(16–6)^2 + (5–2)^2 = 10^2+3^2 = 109$
$(22 – 15)^2 + (21 – 19)^2 = 7^2 + 2^2 = 53$
उसी प्रकार, $(17–13)^2 + (51–48)^2 = 4^2+2^2 =$ **25**

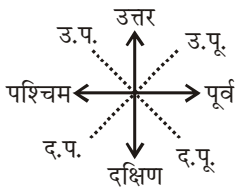
130. (D) भिन्न संख्या (9 + 2) = 11
भिन्न संख्या 11 + 2 = 13
भिन्न संख्या 13 + 2 = **15**

131. (B)

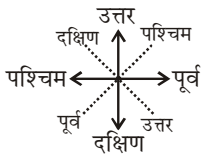


132. (B) **bbabb**

133. (C)



तथा



अत: पूरब की दिशा में दक्षिण-पश्चिम बनेगी।

134. (C)

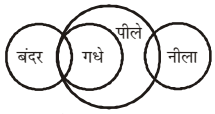
135. (B) 10 A 21 C 3 D 3 B 4
= 10 + 21 ÷ 3 × 3 – 4
= 10 + 7 × 3 – 4
= 10 + 21 – 4
= **27**

136. (A) जिस प्रकार, AUDITORIUM का विपरीत क्रम MUIROTIDUA है। ठीक उसी प्रकार MISFORTUNE का विपरीत क्रम **ENUTROFSIM** है।

137. (A)

138. (B)

139. (D)



निष्कर्ष I. ✓ II. ✓
III. × IV. ×

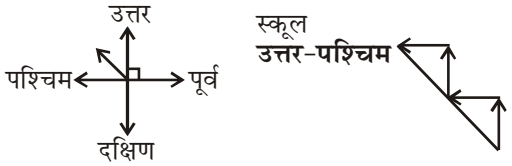
140. (B)

141. (A)

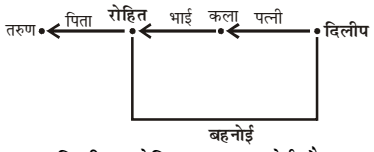
142. (B)

143. (C)

144. (B)

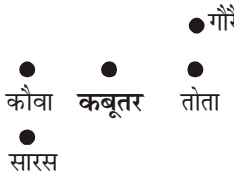


145. (A)



अत: दिलीप, रोहित का बहनोई है।

146. (B)



147. (D) 8 – 8 + 1 = 11 ÷ 11
1 = 1

148. (D) I. R तथा Q के बीच आयु का अंतर
= Q तथा T के बीच आयु का अंतर
II. R तथा T के आयु का योग = 50 वर्ष
तो, R – Q = Q – T

R + T = 2Q

तब, R + T = 50

यहाँ, हम Q का आयु 25 जानते हैं, लेकिन R का आयु नहीं जानते हैं, इसलिए **ऑकड़े अपर्याप्त** हैं।

149. (B) प्रकाश (बाएं से) → 7 • • ← प्रकाश (दाएं से)

∴ प्रकाश की दाईं ओर से प्रारम्भिक स्थिति

(16 – 9 + 1) = **8वीं**

150. (A) 30 सितम्बर, 1997 से 30 सितम्बर, 2003 तक दिनों की संख्या

= 365 × 6 + 1 = 2191

इस अवधि में विषम दिनों की संख्या = 0

∴ **30 सितम्बर, 2003** को मंगलवार पड़ेगा।

151. (A) C A R R O T

152. (C) जिस प्रकार, MAN (1 2 3) ⟶ SANM (2 3 1)

उसी प्रकार, WORD (1 2 3 4) ⟶ SORDW (**2 3 4 1**)

153. (B)

154. (B) जिस प्रकार, CHURCH $\xrightarrow{\text{उल्टा वर्णमाला}}$ XSFIXS

उसी प्रकार,

XLANETARIUM $\xrightarrow{\text{उल्टा वर्णमाला}}$ **COZMVRZIRFN**

155. (C) विनोद की पत्नी की एकमात्र पुत्री ही विनोद की पत्नी है तथा पत्नी की पुत्री ही विनोद की पुत्री हुई। अत: विनोद फोटोग्राफ वाली लड़की का पिता है।

156. (C)

157. (A)

158. (A)

159. (A) कथन I तथा II से चारों जादूगर का प्रदर्शन क्रम

फरवरी का तिथि	व्यक्ति
1	U
2	X
3	V
4	W

अत: **W**, 4 फरवरी को प्रदर्शित करेगा।

160. (C) ∵ 12 घंटों में, वे 22 बार समकोण हैं।

∴ 24 घंटों में, वे **44** बार समकोण है।

UP SI ANSWER KEY - 43

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