UP SI MOCK TEST – 44 (SOLUTION)

81. (D) Total CP of [25kg + 35kg] rice
= ₹ (25 × 16.50 + 35 × 24.50)
= ₹ (412.50 + 857.50)
= ₹ 1270.
SP @ 25% profit = ₹ [1270 × 1.25]
= ₹ 1587.5

$\therefore$ Required rate = $\frac{1587.5}{60}$
= ₹ 26.45 per kg

82. (C) SP – CP = 221
17% of CP = 221

$\Rightarrow$ CP = $\frac{221\times100}{17}$ = 1300

SP = CP + 221 = 1300 + 221 = 1521

83. (B) Area of a circle = πr^2

= $\frac{22}{7}\times 17.5 \times 17.5$

= 962.5 cm^2

84. (C) A.T.Q,
Mohan = 25000 × (36 months)
= ₹900000
Abhishek = [15000 × 30 + 15000 × 24]
= ₹810000
$\therefore$ Profit share in the ratio = 10 : 9

= $\frac{\text{Abhishek}}{\text{Mohan} + \text{Abhishek}}\times 247000$

= $\frac{9}{19}\times 247000$ = ₹1,17,000

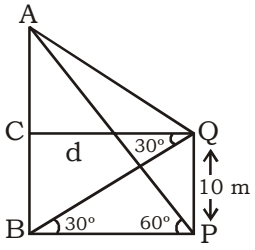
85. (D) Let the number of wickets taken till last match = n
$\therefore$ Total runs @ 24.85 run/wicket
= $(24.85)n$
Total run after current match = $24.85n + 52$
Total number of wicket = $(n + 5)$
A.T.Q,

$\frac{(24.85)n+52}{n+5}$ = 24.85 – 0.85

or, $24.85n + 52 = 24 \times (n + 5)$
or, $24.85n - 24n = 120 - 52$

$\therefore n = \frac{68}{0.85}$ = 80

86. (B)



AB = Tower
QP = 10 metres
IN ΔQBP

$\tan30^\circ = \frac{QP}{PB} \Rightarrow \frac{1}{\sqrt{3}} = \frac{QP}{PB}$

$\Rightarrow$ QP : PB = 1 : $\sqrt{3}$ ...(i)

$\tan60^\circ = \frac{AB}{BP} \Rightarrow \sqrt{3} = \frac{AB}{BP} \Rightarrow$ AB : BP

= $\sqrt{3}$: 1 ...(ii)

CB = QP and CQ = BP
Now,

AB	**:**	**BP**	**:**	**CB**
$\sqrt{3}$	:	1		
		$\sqrt{3}$	:	1
3	:	$\sqrt{3}$	:	1
↓×10				↓×10
30 m				10 m

87. (B) First number × Second number
= 29 × 4147
= 29 × 29 × 11 × 13
= (29 × 11) × (29 × 13)
= 319 × 377
$\therefore$ Sum of two numbers = 319 + 377 = 696

88. (C) –24, –20, –16.....
Let n = required no. of terms
Now,

$S_n = \frac{n}{2}\{2a + (n-1)d\}$

i.e. 180 = $\frac{n}{2}\{2\times(-24) + (n-1)4\}$

or, 180 = $\frac{n}{2}\{-48 + 4n - 4\}$

or, $360 = 4n^2 - 52n$
or, $4n^2 - 52n - 360 = 0$
$\Rightarrow n = 18$

89. (A) -0.2, $(-0.2)^2$, $(-0.2)^3$ and $(-0.2)^4$
$= -0.2, 0.01, -0.008$ and 0.00016
= lowest value of $= -0.2$

90. (D) If $a + b + c = 0$

then, $\frac{a^2}{bc}+\frac{b^2}{ca}+\frac{c^2}{ab}=?$

$\frac{a^2}{bc}+\frac{b^2}{ca}+\frac{c^2}{ab}$

$\frac{a^3+b^3+c^3}{abc} = \frac{3abc}{abc} = 3$

91. (D) ATQ = $\frac{8}{25}$ ← S.I / SUM

Time = $\frac{R}{2}$, Rate = R

Now $8 = \frac{25\times R\times R}{100\times 2} = \left[SI = \frac{P\times R\times T}{100}\right]$

$8 = \frac{R^2}{4\times 2} \Rightarrow 64 = R^2$

R = 8%

92. (D) Distance travelled by driver in 2 hours

$= 300\times\frac{40}{100} = 120$ km

Distance to be covered in 2 hours
$= 300 - 120 = 180$ km

Required speed $= \frac{180}{2} = 90$ km/h

Required difference $= 90-\frac{120}{2}$
$= 30$ km/hr

93. (C) ATQ,

$x = 2+\sqrt{3}$

$\Rightarrow 2x = 4 + 2\sqrt{3}$

$= (\sqrt{3})^2 + 1^2 + 2\sqrt{3}$

$\Rightarrow 2x = (\sqrt{3}+1)^2$

$\Rightarrow \sqrt{2x} = \sqrt{3}+1$

$\Rightarrow \frac{1}{\sqrt{2x}} = \frac{\sqrt{3}-1}{2}$

then

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

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

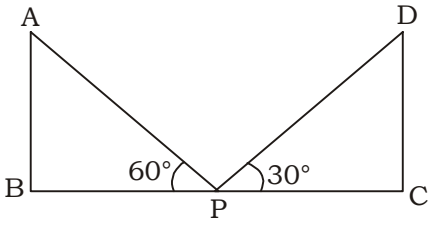
94. (D) CP = ₹ 80
100 oranges - ₹ 80
20 oranges are rotten
Remaining fresh oranges is $(100 - 20)$
Seller wants 25% profit on CP

$= \frac{80\times 25}{100} =$ ₹ 20(profit)

S.P. of 80 oranges is ₹ 100

S.P. of one orange $= \frac{100}{80} = \frac{5}{4} =$ ₹ 1.25

95. (C)



A.T.Q,
AB = DC = x

$\tan 60 = \frac{AB}{BP} \Rightarrow \sqrt{3} = \frac{x}{BP}$

$BP = \frac{x}{\sqrt{3}}$ ...(i)

$\tan 30 = \frac{DC}{PC} \Rightarrow \frac{1}{\sqrt{3}} = \frac{x}{PC}$

$PC = x\sqrt{3}$ ...(ii)

Adding (i) and (ii)

$BP + PC = \frac{x}{\sqrt{3}} + x\sqrt{3}$

BP + PC = 50

$50 = x\left(\frac{4}{\sqrt{3}}\right)$

$x = 50\times\frac{\sqrt{3}}{4}$

$x = 21.65$ mitres

96. (B) P do the whole work in 10 days

one day work done by P is $= \frac{1}{10}$

P does the work in 4 days $= \frac{4}{10} = \frac{2}{5}$

remaining work $= 1 - \frac{2}{5} = \frac{3}{5}$

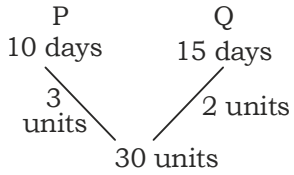
Q does the remaining work in 9 days =

$\frac{3}{5}$ unit $\rightarrow$ 9 days

1 unit $\rightarrow \frac{9\times5}{3}$ days

1 unit $\rightarrow$ 15 days

and P does the 1 unit work in $\rightarrow$ 10 days



30 units work done by P and Q together is

$\Rightarrow \frac{30}{5}$ = 6 days

97. (D) Let x should be added to each number

$(8 + x) : (21 + x) :: (13 + x) : (31 : x)$

$(8 + x)(31 + x) = (21 + x)(13 + x)$

$248 + 8x + x^2 + 31x = 273 + 13x + 21x + x^2$

$39x - 34x = 273 - 248$

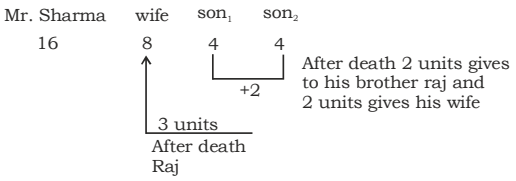
$5x = 25$

$x = 5$

5 is added to each numbers.

98. (C) A.T.Q,

Let total property are = 16 units



11 units $\longrightarrow$ 88 k

1 unit $\longrightarrow$ 8 k

16 units $\longrightarrow$ ₹128,000

99. (B) A.T.Q,

$\tan(A + B) = \frac{\tan A + \tan B}{1 - \tan.\tan B}$

$= \frac{a + b + a - b}{1 - (a + b)(a - b)}$

$= \frac{2a}{1 - (a^2 - b^2)}$ .... (i)

and, $\tan(A - B) = \frac{\tan A - \tan B}{1 + \tan A.\tan B}$

$= \frac{(a + b) - (a - b)}{1 + (a + b)(a - b)} = \frac{2b}{1 + (a^2 - b^2)}$ .... (ii)

Multiply equation (i) and (ii), we get

$\tan(A + B).\ \tan(A - B)$

$= \frac{2a}{1 - (a^2 - b^2)} \times \frac{2b}{1 + (a^2 - b^2)}$

$= \frac{4ab}{1 - (a^2 - b^2)^2}$

100. (A) Let 10 years age of Jayant, Prem and Paras was $2x$, $3x$ and $4x$ years respectively.

A.T.Q.,

$2x + 3x + 4x - 30 = 93$

$9x = 63$

$\Rightarrow\ x = 7$

$\therefore$ present age of Paras = 4 × 7 + 10 = 38 years.

101. (D) Ratio of investments of A, B and C

= 12,600 × 12 : 14,400 × 8 : 13,200 ×6

= 126 : 96 : 66

= 21 :16 : 11

$\therefore$ Profit of C = $\frac{11}{48}$ × 69,600 = ₹15,950

102. (B)

	Time	Efficiency
X	12	15
Y	15	12 = 180- unit (capacity of tank)
Z	18	10

In 2.5 min = 2.5 × 12 = 30 unit

In 3.5 min = 3.5 × (12 + 10) = 77 units

Total time taken to fill the tank

= 2.5 + 3.5 + $\frac{180 - 107}{37} \approx$ 8 min

103. (D) In 15 min; $\frac{60\times15}{60}$ =15 km distance travelled by thief

Police have to chase 15 km

Relative speed = 65 – 60 = 5 kmph

Time taken to catch the thief will be

$\frac{60\times15}{60}$ = 3 hrs

$\therefore$ Reqd. time = 12:00 + 3hrs + 15 min = 3 : 15 PM

104. (A) Gain in 2 years

$= ₹\left[\left(5000\times\frac{25}{4}\times\frac{2}{100}\right) - \left(\frac{5000\times4\times2}{100}\right)\right]$

= ₹ (625 – 400)

= ₹ 225.

$\therefore$ Gain in 1 year = ₹ $\left(\frac{225}{2}\right)$ = ₹112.50

105. (A) 1st alloy silver = $\frac{2}{5} \times 15 = 6$

Copper = $\frac{3}{5} \times 15 = 9$

Let copper to be removed = x

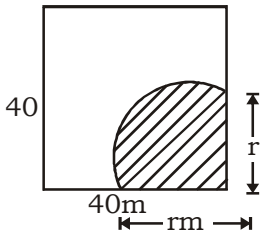
Then,

$\frac{6+10}{9-x} = \frac{4}{1}$

$\Rightarrow 16 = 36 - 4x$

$\Rightarrow x = 5$ gm

106. (D) Let length of rope = r



Area grazed by horse = $\frac{1}{4} \times \pi r^2$

$38.5 = \frac{1}{4} \times \frac{22}{7} \times r^2$

$\Rightarrow r^2 = 49$

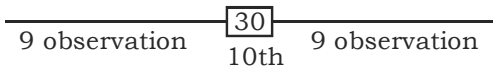
$\Rightarrow r = 7$ m

107. (D) Area of equilateral triangle = $\frac{\sqrt{3}}{4}a^2$

$= \frac{\sqrt{3}}{4} \times 8 \times 8 = 16\sqrt{3}\text{cm}^2$

108. (B) A.T.Q,

Case – I



Case – II

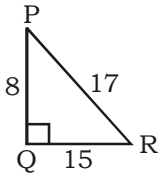
When two more observation median are lies between the 21 observation hence median does not change.

Because median are positional function So, median remains same

109. (C) Total surface area of a cube = $6 \times a^2$

$= 6 \times (7.5)^2 = 337.5\ \text{cm}^2$

110. (B)



cosecP = $\frac{H}{P} = \frac{17}{15}$

then sinR = $\frac{P}{H} = \frac{8}{17}$

111. (A) $b - [b - (a + b) - \{b - (b - a - b)\} + 2a]$

$= b - [b - a - b\{b + a\} + 2a)$

$= b - [-a - b - a + 2a]]$

$= b + b$

$= 2b$

112. (B) For divide by $(x + 2)$

Let $(x + 2)$ is a factor this exp.

Then $x + 2 = 0$

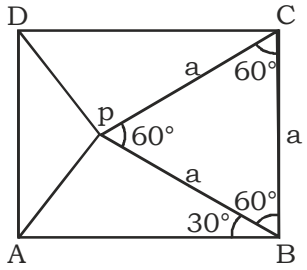
$x = 0 - 2$

Put the value of x in this eq.

$4(-2)^4 + 10(-2)^3 - 20(-2)^2 + 90 = -6$

113. (C) A.T.Q,

BPC is an equilateral so all angles are 60°



$\therefore$ In ΔABP

$\therefore$ AB = BP = a (side os square)

$\therefore \angle APB = \angle BAP = 75°$

$\therefore$ similarly, $\angle DPC = 75°$

$\therefore 60° + 75° + 75° + \angle APD = 360°$

$\Rightarrow \angle APD = 360° - 150° - 60°$

$= 150$

114. (A) Angles of triangle,

$\Rightarrow (a - d)°, a°, (a + d)°$

$\therefore a - d + a + a + d = 180°$

$\Rightarrow 3a = 180° \Rightarrow a = 60$

$\therefore \frac{a-d}{a+d} = \frac{60}{\pi} = \frac{60}{180} = \frac{1}{3}$

$\Rightarrow \frac{60-d}{60+d} = \frac{1}{3}$

$\Rightarrow 180 - 3d = 60 + d$

$\Rightarrow 4d = 120° \Rightarrow d = 30°$

$a - d = 60° - 30° = 30°$

$a = 60°$

$a + d = 60° + 30° = 90°$

30°, 60°, 90°

115. (D) $\left\{(49)^{\frac{3}{2}}+(49)^{-\frac{3}{2}}\right\}$

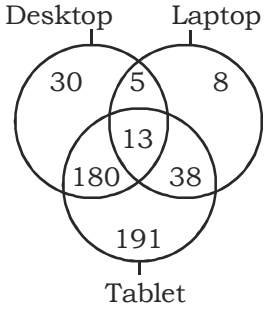
$= \left\{(7)^3+(7)^{-3}\right\}$

$= 7^3+\frac{1}{7^3}$

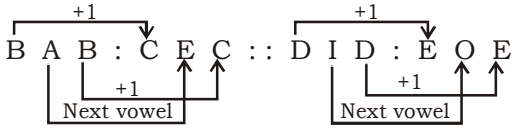
$= 343+\frac{1}{343}$

$= \frac{117650}{343}$

116. (D) Use figure from 91 to 95



117. (A) 118. (C)
119. (B) 120. (B)
121. (C) Force shows Newton. Similarly, Pressure shows Pascal.
122. (B)

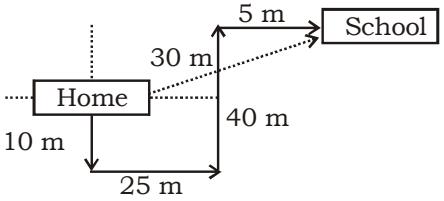


123. (D) 6 : 30 :: 7 : 42 (6×5, 7×6)
124. (D) 617 – 600 = 17
553 – 536 = 17
943 – 931 = 17
756 – 738 = 18
125. (D) Currency of UK is Pound.
126. (A) 127. (D)
128. (C) 21 ÷ 3 × 11 = 77
36 ÷ 4 × 12 = 108
Similarly,
24 ÷ x × 14 = 112

$\Rightarrow \frac{24}{x} = \frac{112}{14}$

$\Rightarrow \frac{24}{x} = 8$

Hence, x = **3**
129. (A) 15 × 2 – 3 = 27
31 × 2 – 6 = 56
and, **45** × 2 – 9 = 81
130. (B) 0 5 60 615 **6170**
(+5, +55, +555, +5555)
131. (B) 3120 **621** 122 23 4
(621×5+15, 122×5+11, 23×5+7, 4×5+3)
132. (D) **b**aab/ab**b**a/b**a**ab/**a**bba
133. (B)

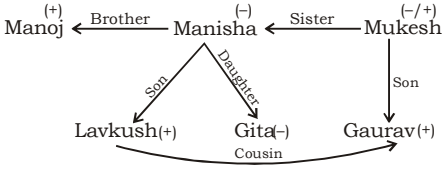


134. (D) INTENTION
135. (D) After changing the signs according to question, the equation will be,
45 ÷ 9 × 3 + 15 – 2
$\Rightarrow$ 5 × 3 + 15 – 2 $\Rightarrow$ 15 + 15 – 2
$\Rightarrow$ 30 – 2 = 28
136. (B) T A B L E C L O T H
X E M R A N R I X D
Similarly,
H O T E L
D I X A R
137. (A) From figure 1 & 3,

3	6	5
3	2	1

$\therefore$ '**1**' will come opposite to face containing 5.
138. (D) Millenium 1, Centenary 4, Diamond Jubilee 2, Gold Jubilee 5, Silver Jubilee 3
139. (B)

Conclusion: I. ---------- (×)
II. ---------- (✓)
140. (A) 141. (C)
142. (A) 143. (C)
144. (C) Mohan > Ghanshyam = Shyam > Ram.
145. (A)



Lavkush is the son of Manisha and Gaurav is the son of Manisha's brother/sister Mukesh. Gaurav will be cousin of Lavkush.
146. (B) E B A C D
Therefore, A is sitting in between B and C.

147. (A) $6 \div 17 \times 51 + 6 - 12 = -4$
From option (A),
$6 \times 17 \div 51 + 6 - 12 = -4$
$\Rightarrow 2 + 6 - 12 = -4$
$\Rightarrow -4 = -4$

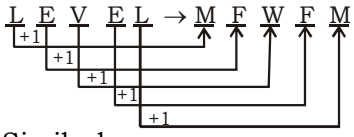
148. (B) Colour of blood is red. Here Red means Green so colour of blood is Green.

149. (B) $\frac{\text{Perk}}{4}$ $\frac{\text{Pick}}{1}$ $\frac{\text{Pile}}{3}$ $\frac{\text{Pith}}{2}$ $\frac{\text{Pour}}{5}$
Hence, options (B) is right answer.

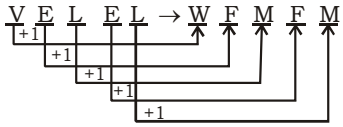
150. (C) $\boxed{K} > G > R > A$
↓
most senior

151. (B)

152. (C) As,

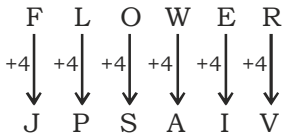


Similarly,

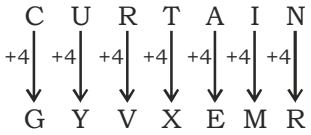


153. (C)

154. (D)



Similarly,



155. (A) Brother of mother means maternal uncle. Hence only nephew of Aamir's maternal uncle means Aamir himself. Therefore Sonia is the wife of Aamir.

156. (A) 157. (A)

158. (D) 159. (A)

160. (B)

Games⇨ / Person ⇩	Hockey	Chess	Cricket	Football
Anand	×	×	×	✓
David	×	✓	×	×
Karim	×	×	✓	×
Mano	✓	×	×	×

UP SI ANSWER KEY - 44

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