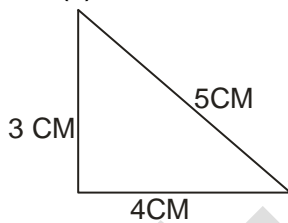


## SSC – TEST SERIES -4 SOLUTION

1	A	26	B	51	C	76	D	101	C	126	D	151	A	176	A
2	B	27	C	52	B	77	D	102	D	127	D	152	C	177	D
3	B	28	D	53	B	78	A	103	A	128	D	153	C	178	B
4	D	29	D	54	D	79	D	104	B	129	C	154	D	179	B
5	C	30	C	55	B	80	D	105	A	130	D	155	B	180	C
6	D	31	D	56	D	81	B	106	A	131	D	156	A	181	A
7	D	32	C	57	A	82	B	107	D	132	B	157	D	182	C
8	A	33	D	58	D	83	B	108	C	133	C	158	A	183	A
9	B	34	C	59	D	84	D	109	C	134	B	159	D	184	D
10	C	35	A	60	A	85	A	110	C	135	D	160	A	185	B
11	C	36	C	61	A	86	C	111	D	136	A	161	D	186	C
12	B	37	A	62	B	87	C	112	C	137	A	162	B	187	D
13	A	38	C	63	A	88	D	113	A	138	C	163	D	188	B
14	D	39	A	64	B	89	A	114	C	139	D	164	D	189	C
15	D	40	A	65	D	90	D	115	D	140	D	165	A	190	D
16	C	41	A	66	D	91	B	116	(d)	141	B	166	A	191	D
17	D	42	B	67	C	92	A	117	A	142	D	167	B	192	D
18	C	43	C	68	A	93	B	118	D	143	B	168	C	193	D
19	C	44	C	69	C	94	B	119	D	144	D	169	B	194	C
20	D	45	C	70	C	95	B	120	B	145	D	170	A	195	C
21	D	46	D	71	(*)	96	B	121	A	146	B	171	C	196	D
22	D	47	C	72	D	97	A	122	C	147	A	172	B	197	C
23	B	48	B	73	D	98	D	123	B	148	A	173	B	198	C
24	C	49	C	74	A	99	D	124	A	149	D	174	C	199	A
25	C	50	C	75	D	100	B	125	D	150	D	175	B	200	A

101. (C)



$$\text{Radius of incentre } C_1 = \frac{\Delta}{s} = \frac{\frac{1}{2} \times 3 \times 4}{\frac{3+4+5}{2}} = 1$$

$$\text{Radius of circumcircle } C_2 = \frac{abc}{4\Delta} = \frac{3 \times 4 \times 5}{4 \times \frac{1}{2} \times 3 \times 4} = \frac{5}{2} \text{ cm}$$

$$\frac{\text{Area of } C_1}{\text{Area of } C_2} = \frac{\pi(1)^2}{\pi\left(\frac{5}{2}\right)^2} = \frac{4}{25}$$

$$102. (d) \ x = \frac{1}{\sqrt{2}+1} \times \frac{\sqrt{2}-1}{\sqrt{2}-1} = \frac{\sqrt{2}-1}{(\sqrt{2})^2-1} = \sqrt{2}-1$$

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

103. Income = Rs. 360000

$$\text{Savings} = \frac{60}{360} \times 360000 = \text{Rs. } 60000$$

104. Education - housing =  $70^\circ - 54^\circ = 16^\circ = \text{Rs. } 1600$   
 $1^\circ = \text{Rs. } 100$

Expenditure on food =  $120^\circ = 120 \times 100 = \text{Rs. } 12000$

105. (a) Expenditure on food/savings =  $2/1$

106. (a) correct average marks =  $88 - \frac{18}{6} = 85$

107. (d)  $60+80/2=70$

108. (c)  $70+10/2=40$

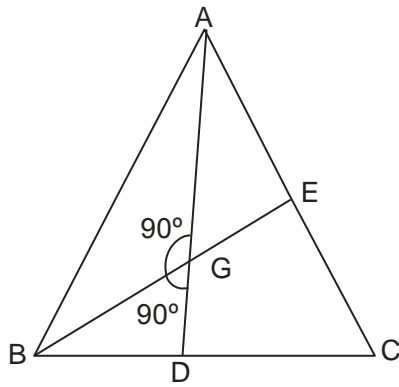
109. (c)  $80+50+10+20/4=40$ .

110. (c)  $60+50+70+30=210$

111. (d)  $\frac{4}{3}\pi r^3 = 4\pi r^2 \Rightarrow r=3$  diameter =  $2r=6$ .

112. (c) Required time =  $1050/75=14$  hrs.

113. (a) Given G is centroid of  $\Delta ABC$  and  $\angle BGC=90^\circ$



AG/GD=2/1

$AG = \frac{2 \times 9}{3} = 6 \text{ cm.}$

BG/EG=2/1

$BG = \frac{2 \times 12}{3} = 8 \text{ cm}$

In  $\Delta$  AGB

$AB^2 = BG^2 + GA^2$

$= (8)^2 + (6)^2$

$AB = 10$

114. (c) Minimum value = 2

115. (d) In a triangle  $x + 15^\circ + \frac{6x}{5} + 6 + \frac{2x}{3} + 30 = 180^\circ \Rightarrow x = 45^\circ$

Then the angle of triangle are  $60^\circ, 60^\circ, 60^\circ$  triangle is equilateral

116. (d) Female	:	Male
40		60
Married $\frac{40 \times 70}{100} = 28$		$\frac{60 \times 50}{100} = 30$

Total married = 58%

Unmarried =  $100 - 58 = 42\%$

117. Let the height of cone h metre

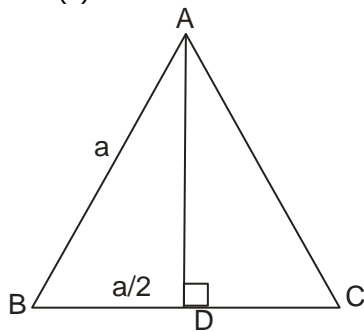
Total area of ground will be required =  $5 \times 16 = 80 \text{ m}^2$

$= 100 \times 5 \text{ m}^3 = 500 \text{ m}^2$

शंकु का आयतन  $500 \text{ m}^3 \Rightarrow \pi r^2 \times h = 500 \Rightarrow \frac{1}{3} \times 80 \times h = 500$

$= h = 18.75 \text{ m}$

118. (d)



$AD = 12\sqrt{3} \text{ cm}$

$AD = \frac{\sqrt{3}}{2} a$

$a = 24 \text{ cm}$

Area of  $\Delta$  ABC =  $\frac{\sqrt{3}}{4} a^2$

$= \frac{\sqrt{3} \times 24 \times 24}{4}$

$= 144\sqrt{3} \text{ cm}^2$

119. (d) Ist case

Net discount =  $40 + 30 - \frac{40 \times 30}{100} = 70 - 12 = 58\%$

IInd case

Net discount

$= 45 + 20 - \frac{45 \times 20}{100} = 65 - 9 = 56\%$

In two stage the difference

$58 - 56 = 2\%$

We know  $2\% = \frac{10}{50 - \text{C.P.}}$

$10 \rightarrow 12$

C.P. = 50 U =  $50 \times 12 = \text{Rs. } 600$

120. (a) By option

जो रेखा (origin) मूल बिन्दु से ही जायेगी वो बिन्दू Straight करेगी  
 $2 \times 0 - 3 \times 0 = 0$

Option (a) satisfy this.

121. HCF of  $x^8 - 1$  and  $x^4 + 2x^3 - 2x - 1$

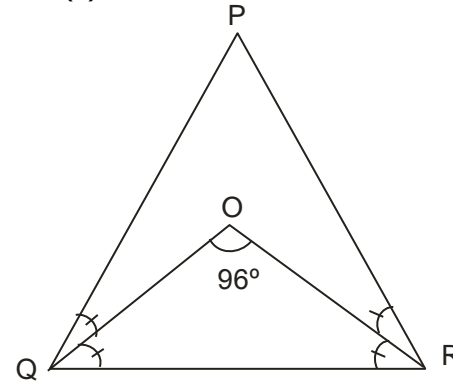
Is  $x^2 - 1$

123. LCM of 6,9,12,15,18

$= 3 \times 3 \times 2 \times 2 \times 5 = 180$

Required number is  $180 + (R) = 180 + 2 = 182$ .

124 (a) We know that



$\angle ROQ = 90^\circ + \frac{\angle P}{2}$

$90^\circ + \frac{\angle P}{2} = 96$

$\angle P = 12^\circ$

125. (d) Rate =  $10\% = \frac{1}{10}$

For 2 years

P	A
10	11
<u>10</u>	<u>11</u>
100 unit	121 unit
Principal	Amount

121 unit = Rs. 12,100

10 --- Rs. 100

Principal =  $100 \times 100 = \text{Rs. } 10000$

126.  $A \times 2 = B \times 3$

$\frac{A}{B} = \frac{3}{2}$

Total work =  $8 \times 3 = 24 \text{ unit}$

Time taken by B =  $24/2 = 12 \text{ days}$

127. (d)  $2x + 3x + 5x = 180^\circ$

$X = 18^\circ$

$$5x = 90^\circ$$

Hence triangle is right angle

128. (d) by option the required number is  $\beta$ .

129. (c) Let the angle are  $\alpha$  and  $\beta$

$$\alpha + \beta = \frac{22}{7} \text{radian} = \frac{22}{7} \times \frac{180}{\pi} = \frac{22}{9} \times \frac{180}{2} \times 7$$

$$\alpha + \beta = 140^\circ$$

$$\alpha - \beta = 36^\circ$$

$$\frac{2\alpha = 176}{\alpha = 88}$$

$$\beta = 52^\circ - \text{smaller angle}$$

130. (d)

$$(4M+6W) \times 8 = (2M+9W) \times 8$$

$$\frac{M}{W} = \frac{3}{2}$$

$$\text{Total work} = (12+12) \times 8 \Rightarrow 24 \times 8 \text{ unit}$$

Required time

$$= \frac{24 \times 8}{18 \times 2} = 5 \frac{1}{3} \text{ days}$$

131. (d)

$$\frac{x^{24} + 1}{x^{12}} = 7$$

$$\left[ \frac{(x^{24} + 1)}{x^{12}} \right]^3 = 7^3$$

$$\frac{x^{72} + 1}{x^{36}} + \frac{3 \cdot x^{24} \times 1(x^{24} + 1)}{x^{36}} + 343$$

132. Given  $5x+9y=5 \dots(i)$

$$125x^3 + 729y^3 = 120 \dots(2)$$

From equation (1) cubing both sides  $(5x+9y)^3 = 5^3$

$$125x^3 + 729y^3 + 3 \times 5x + 9y(5x+9y) = 125$$

$$120 + 135xy \times 5 = 125$$

$$135, xy = 1.$$

133. (c)

$$4M \times 15 = 8 \times w \times 15$$

$$\frac{M}{W} = \frac{2}{1}$$

$$\text{Total work} = 2 \times 4 \times 15 = 120 \text{ units } 2$$

$$\text{Required time} = \frac{120}{12+12} = \frac{120}{24} = 5 \text{ days}$$

$$134. \sin^2 22^\circ + \sin^2 68^\circ + \cot^2 30^\circ$$

$$(\{\sin(90-68)^\circ\}^2 + \sin^2 68^\circ + (\sqrt{3})^2$$

$$\cos^2 68^\circ + \sin^2 68^\circ + 3 = 1 + 3 = 4.$$

$$136. (a) \tan(4\theta - 50^\circ) = \cot(50^\circ - \theta)$$

$$\tan(40^\circ - 50^\circ) = \tan(90^\circ - 50^\circ + \theta)$$

$$40^\circ - 50^\circ = 40^\circ + \theta$$

$$\theta = 30^\circ$$

$$138. (c) 5 \sin \theta = 3/5$$

$$\sin \theta = 3/5$$

$$\sec \theta = 5/4$$

$$\tan \theta = 3/4$$

$$\frac{\sec \theta - \tan \theta}{\sec \theta + \tan \theta} = \frac{\frac{5}{4} - \frac{3}{4}}{\frac{5}{4} + \frac{3}{4}} = \frac{1}{4}$$

139. (d) Let the number is  $x$ .

$$x \times \frac{3}{4} = x \times \frac{1}{6} + 7$$

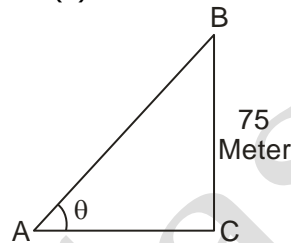
$$\frac{3x}{4} - \frac{x}{6} = 7$$

$$9x - 2x = 7 \times 12 \Rightarrow x = 12$$

$$\text{Required number } 12 \times \frac{5}{3} = 20$$

140. (d) average/arithmetic mean of first  $n$  odd natural is  $\frac{n}{2}$ .

14. (b)



$$\cot \theta = 8/15$$

From figure

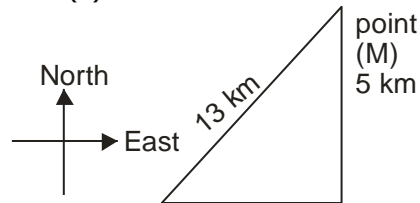
$$\cot \theta = AC/CB$$

$$AC/CB = 8/15$$

$$AC = \frac{8}{15} \times 75 = 40 \text{ cm}$$

$$\text{Length of string AB} = \sqrt{(75)^2 + (40)^2} = 85 \text{ cm } r$$

142. (d)



$$LM = \sqrt{(12)^2 + (5)^2} = 13 \text{ km}$$

143. (b) Necessary passing marks = 36%

Let total number is  $T$

$$\frac{T \times 36}{100} = 90 + 35 = 225 \Rightarrow T = 625$$

144. (d) speed = 90 km/h

$$\text{Or } 90 \times \frac{5}{18} = 25 \text{ m/sec}$$

$$\text{Required time} = \frac{180}{25} = 7.2 \text{ sec}$$

$$145. (d) \text{ discount \%} = \frac{78}{975} \times 100 = 8\%$$

146. (b)  $\sec \theta + \tan \theta = P$

$$\sec \theta - \tan \theta = 1/P$$

$$2 \sec \theta = P + 1/P$$

$$\sec \theta = \frac{1}{2} \left[ P + \frac{1}{P} \right]$$

147. (a)

$$P = 99$$

$$P = (100 - 1)$$

$$P(P^2 + 3P + 3)$$

$$= (100 - 1) [(100 - 1)^2 + 3(100 - 1) + 3]$$

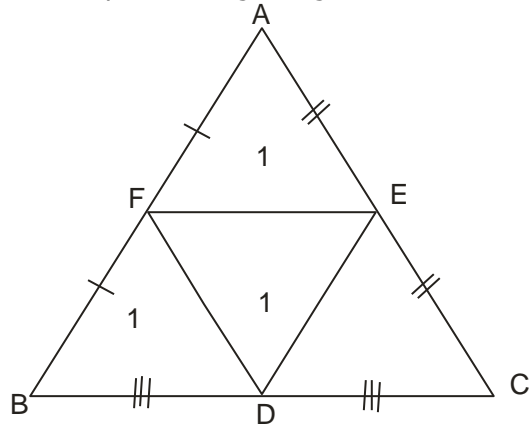
$$= (100 - 1) [10000 + 1 - 200 + 300 - 3 + 3]$$

$$= 99 [10000 + 100 + 1]$$

$$= 99 \times 10101$$

$$= 999999$$

149. (d) We know when a new triangle is formed by using mid points of big triangle.



In this case area of 4 triangle is same  
Area of  $\triangle AFE = \triangle FBD = \triangle FDE = \triangle DEA$

Parallelogram  $\triangle DFB = \triangle BFD + \triangle DEF = 1 + 1 = 2$

Area of trapezium  $CAFD = \triangle AFE + \triangle FED$

Required ratio is  $2:3 = \triangle DLE = 1 + 1 + 1 = 3$ .

150.

$$\frac{A}{B} = \frac{4x}{5x}$$

$$(5x)^2 - (4x)^2 = 81$$

$$25x^2 - 16x^2 = 81$$

$$9x^2 = 81 \Rightarrow x = 3$$

Then value of  $A = 4 \times 3 = 12$ .

**ENGLISH LANGUAGE**

**164.** Adverb + HV + sub so use nor does he smile

**165. (a)** will or shall is not used with if

If + sub +  $V_1$

If I get

166. (a) Shook means हिलाना

Noded means सिर हिलाना

167. (b)