331. $\boldsymbol{Cos^{-1}(-x) =}$

(a) $-Cos^{-1}x$ (b) $Cos^{-1}x$ (c) ✔ $\pi - Cos^{-1}x$ (d) $\pi - Cosx$

332. $\boldsymbol{Tan^{-1}(-x) =}$

(a) ✔ $-Tan^{-1}x$ (b) $Tan^{-1}x$ (c) $\pi - Tan^{-1}x$ (d) $\pi - Tanx$

333. $\boldsymbol{Cosec^{-1}(-x) =}$

(a) ✔ $-Cosec^{-1}x$ (b) $Cosec^{-1}x$ (c) $\pi - Cosec^{-1}x$ (d) $\pi - Cosecx$

334. $\boldsymbol{Cot^{-1}(-x) =}$

(a) $-Cot^{-1}x$ (b) $Cot^{-1}x$ (c) ✔ $\pi - Cot^{-1}x$ (d) $\pi - Cotx$

335. If $\tan 2x = -1$, then solution in the interval $[0, \pi]$ is:

(a) ✔ $\frac{\pi}{8}$ (b) $\frac{\pi}{4}$ (c) $\frac{3\pi}{8}$ (d) $\frac{3\pi}{4}$

336. If $sinx + cosx = 0$ then value of $x \in [0, 2\pi]$

(a) $\{\frac{\pi}{4}, \frac{3\pi}{4}\}$ (b) $\{\frac{\pi}{4}, \frac{7\pi}{4}\}$ (c) ✔ $\{\frac{3\pi}{4}, \frac{7\pi}{4}\}$ (d) $\{\frac{\pi}{4}, \frac{-\pi}{4}\}$

337. General solution of $4sinx - 8 = 0$ is:

(a) $\{\pi + 2n\pi\}$ (b) $\{\pi + n\pi\}$ (c) $\{-\pi + n\pi\}$ (d) ✔ not possible

338. General solution of $1 + cosx = 0$ is:

(a) ✔ $\{\pi + 2n\pi\}$ (b) $\{\pi + n\pi\}$ (c) $\{-\pi + n\pi\}$ (d) not possible

1. For the general solution , we first find the solution in the interval whose length is equal to its:

(a) Range (b) domain (c) co-domain (d) ✔ period

339. General solution of every trigonometric equation consists of :

(a) One solution only (b) two solutions (c) ✔ infinitely many solutions (d) no real solution

340. Solution of the equation $2sinx + \sqrt{3} = 0$ in the 4th quadrant is:

(a) $\frac{\pi}{2}$ (b) ✔ $\frac{-\pi}{3}$ (c) $\frac{-\pi}{6}$ (d) $\frac{11\pi}{6}$

341. If $sinx = cosx$, then general solution is:

(a) $\{\frac{\pi}{4} + n\pi, n \in Z\}$ (b) $\{\frac{\pi}{4} + 2n\pi, n \in Z\}$ (c) ✔ $\{\frac{\pi}{4} + n\pi, \frac{5\pi}{4} + n\pi\}$ (d) $\{\frac{\pi}{4} + n\pi, \frac{5\pi}{4} + n\pi\}$

342. In which quadrant is the solution of the equation $sinx + 1 = 0$

(a) 1st and 2nd (b) 2nd and 3rd (c) ✔ 3rd and 4th (d) Only 1st

343. If $sinx = 0$ then $x =$

(a) ✔ $n\pi, n \in Z$ (b) $\frac{n\pi}{2}, n \in Z$ (c) 0 (d) $\frac{\pi}{2}$

SHORT QUESTIONS SEC (A)

1)	Which of the following have closure property w.r.t addition and multiplication $\{0, -1\}$
2)	Prove that $-\frac{7}{12} - \frac{5}{18} = \frac{-21-10}{36}$
3)	Write reflexive property of equality of real number.
4)	Simplify by justifying each step. $\frac{\frac{1}{4}+\frac{1}{5}}{\frac{1}{4}-\frac{1}{5}}$
5)	Prove the rules of addition. $\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$
6)	Prove the rules of addition. $\frac{a}{b} + \frac{c}{d} = \frac{ad+bc}{bd}$
7)	Prove that $-\frac{7}{12} - \frac{5}{18} = \frac{-21-10}{36}$
8)	Find the sum, difference and product of the complex numbers $(8,9)$ and $(5,-6)$
9)	Simplify: $(-1)^{\frac{-21}{2}}$
10)	Simplify $(2,6)(3,7)$
11)	Simplify $(2,6) \div (3,7)$ Hint: $\frac{(2,6)}{(3,7)} = \frac{2+6i}{3+7i} \times \frac{3-7i}{3-7i}$ etc.
12)	Simplify $(5,-4) \div (-3,-8)$
13)	Find the multiplicative inverse of the numbers: $(-4,7)$
14)	Find the multiplicative inverse of the numbers: $(\sqrt{2}, -\sqrt{5})$

15)	Factorize: $9a^2+16b^2$
16)	Factorize: $3x^2+3y^2$
17)	Separate into real and imaginary parts (write as a simple complex number) $\frac{2-7i}{4+5i}$
18)	Find the multiplicative Inverse of each of the numbers. $(1,2)$
19)	Prove that $\bar{z}=z$ if z is real.
20)	Simplify by expressing in the from a + bi $(2+\sqrt{-3})(3+\sqrt{-3})$
21)	Show that $\forall z \in C.\ z^2+\bar{z}^2$ is a real number
22)	Show that $\forall z \in C.\ (z-\bar{z})^2$ is a real number
23)	Simplify: $\left(-\frac{1}{2}+\frac{\sqrt{3}}{2}i\right)^3$
24)	Find moduli of the complex numbers $1-i\sqrt{3}$
25)	Write two proper subsets of the set: $\{a,b,c\}$
26)	Write down the power set of the each of the sets: $\{+,-,\div,\times\}$
27)	Write the converse, inverse and contrapositive of the conditionals: $\sim p \to q$
28)	If G is a group under the operation *and $a,b\ \epsilon G$, find the solution of the equations $a*x=b$, $x*a=b$.
29)	***Find x and y if*** $\begin{bmatrix}2&0&x\\1&y&3\end{bmatrix}+2\begin{bmatrix}1&x&y\\0&2&-1\end{bmatrix}=\begin{bmatrix}4&-2&3\\1&6&1\end{bmatrix}$
30)	(xiv) If $A=\begin{bmatrix}1&2\\a&b\end{bmatrix}$ and $A^2=\begin{bmatrix}0&0\\0&0\end{bmatrix}$, find the values of a and b.
31)	if A and B are square matrices of the same order, then explain why in general: $(A+B)(A-B)\neq A^2\ B^2$
32)	solve the equation $\begin{vmatrix}5&-2&-4\\3&-1&-3\\-2&1&2\end{vmatrix}$
33)	without expansion show that $\begin{bmatrix}6&7&8\\3&4&5\\2&3&4\end{bmatrix}=0$
34)	Without expansion show that $\begin{vmatrix}1&1&1\\x&y&z\\yz&zx&xy\end{vmatrix}=\begin{vmatrix}1&1&1\\x&y&z\\x^2&y^2&z^2\end{vmatrix}$
35)	Show that $\begin{vmatrix}1&a^2&\frac{a}{bc}\\1&b^2&\frac{b}{ca}\\1&c^2&\frac{c}{ab}\end{vmatrix}=0$
36)	Without expansion verify that $\begin{vmatrix}1&a^2&\frac{a}{bc}\\1&b^2&\frac{b}{ca}\\&,&c\end{vmatrix}$
37)	Show that $\begin{vmatrix}x&1&1&1\\1&x&1&1\\1&1&x&1\\1&1&1&x\end{vmatrix}=(x+3)(x-1)^3$
38)	Salve the equation by factorization: $\frac{a}{ax-1}+\frac{b}{bx-1}=a+b; x\neq\frac{1}{a},\frac{a}{b}$
39)	Without expansion verify that $\begin{vmatrix}rcos\emptyset&1&-sin\emptyset\\0&1&0\\rsin\emptyset&0&cos\emptyset\end{vmatrix}=r$
40)	$if\ A=\begin{bmatrix}2&-1\\3&1\end{bmatrix}$ verify that $(A^{-1})^t=(A^t)^{-1}$
41)	Without expansion verify that $\begin{vmatrix}mn&l&l^2\\nl&m&m^2\\lm&n&n^2\end{vmatrix}=\begin{vmatrix}1&l^2&l^3\\1&m^2&m^3\\1&n^2&n^3\end{vmatrix}$
42)	Find the matrix ***X if*** $X\begin{bmatrix}5&2\\-2&1\end{bmatrix}=\begin{bmatrix}-1&5\\12&3\end{bmatrix}$
43)	Show that: $x^3-y^3=(x-y)(x-\omega y)(x-\omega^2 y)$
44)	Evaluate: $(1+\omega-\omega^2)(1-\omega+\omega^2)$
45)	Evaluate: $(1+\omega-\omega^2)^8$
46)	Evaluate: $(-1+\sqrt{-3})^5+(-1-\sqrt{3})^5$

47)	Solve the equations: $2x^4 - 32 = 0$
48)	Salve the equations: $x^3 + x^2 + x + 1 = 0$
49)	Use the factars theorem ta determine if the first polynomial is a factar of the second polynomial. $\omega + 2, 2\omega^3 + \omega^2 - 4\omega + 7$
50)	Find four fourth roots of 16
51)	If w is a cube root of unity, form an equation whose roots are 2ω and $2\omega^2$
52)	Find roots of the equation by using quadratic formula: $15x^2 + 2ax - a^2 = 0$ $\frac{1}{\alpha^2} + \frac{1}{\beta^2}$
53)	If α, β are the raots of $3x^2 - 2x + 4 = 0$, find the values of $\frac{\alpha}{\beta} + \frac{\beta}{\alpha}$
54)	If α, β are the raots of $3x^2 - 2x + 4 = 0$, find the values of $\alpha^2 - \beta^2$
55)	if α, β are the roots of $x^2 - px - p - c = 0$, prove that $(1 + \alpha)(1 + \beta) = 1 - c$
56)	if α, β are the roots of the equation $ax^2 + bx + c = 0$, from the equation whose raots are. α^2, β^2
57)	If α, β are the raots of the equation $ax^2 + bx + c = 0$, fram the equation whose r0ots are. $\alpha + \frac{1}{\alpha}, \beta + \frac{1}{\beta}$
58)	Discuss the nature of the raots of the equation. $x^2 - 5x + 6 = 0$
59)	Discuss the nature of the roots of the equation. $25x^2 - 30x + 9 = 0$ $x^2 - 2\left(m + \frac{1}{m}\right)x + 3\,; m \neq 0$
60)	Show that the roots of the equation will be rational: $(p + q)x^2 - px - q = 0$
61)	Find two consecutive numbers, whose productis 132 . (Hint: Suppose the numbers are x and x +1}
62)	Use synthetic division to find the quotient and the remainder when the polynomial $x^4 - 10x^2 - 2x + 4$ is divided by $x + 3$
63)	Discuss the nature of the raots of the equations: $2x^2 + 5x - 1 = 0$
64)	Which of the following sets have closure property w.r.t addition and multiplication ? (i)$\{0, -1\}$ (ii)$\{1, -1\}$
65)	Theorems: $\forall z, z_1, z_2 \in C z\bar{z} = \lvert z \rvert^2$
66)	Theorems $\forall z, z_1, z_2 \in C \left(\frac{z_1}{z_2}\right) = \frac{\overline{z_1}}{\overline{z_2}}$
67)	Find the power set· $\{\{a, b\}, \{b, c\}, \{d, e\}$.
68)	Reversal law of inverse if a, b are elements of group G, then show that $(ab)^{-1} b^{-1} a^{-1}$
69)	Find x and y if $\begin{bmatrix} x+3 & 1 \\ -3 & 3y-4 \end{bmatrix} = \begin{bmatrix} y & 1 \\ -3 & 2x \end{bmatrix}$
70)	Solve the equation $x^{\frac{1}{2}} - x^{\frac{1}{4}} - 6 = 0$
71)	Solve the equation $x^{\frac{2}{5}} + 8 = 6x^{\frac{1}{5}}$
72)	Prove Three Cube Roots of Unity .
73)	The Sum of all the three cube roots of unity is zero. i.e., $1 + \omega + \omega^2 = 0$

SHORT QUESTIONS SEC (B)

74)	Resolve the following into Partial Fraction:$\frac{6x^3+5x^2-7}{2x^2-x-1}$
75)	Resolve the Partial Fraction: $\frac{9}{(x+2)^2(x-1)}$
76)	Resolve, $\frac{7x+25}{(x+3)(x+4)}$ into Partial Fractions.
77)	Write the first four terms of the sequences, if $a_n = (-1)^n (2n - 3)$
78)	Write the first four terms of the sequences, if $a_n = n a_{n-1}, a_1 = 1$
79)	Find the indicated term of the sequence: $1, -3, 5, -7, 9, -11, \ldots\ldots a_8$
80)	Find the 13 th term of the sequence $x, 1, 2 - x, 3 - 2x, \ldots$
81)	Which term of the A.P. $-2, 4, 10, \ldots$ is 148?
82)	Resolve the Partial Fraction: $\frac{x^2}{(x-2)(x-1)^2}$
83)	Resolve, $\frac{x^2+x-1}{(x+2)^3}$ into Partial Fractions.
84)	Write the first four terms of the sequences, if $a_n = (-1)^n n^2$
85)	Write the first four terms of the sequences, if $a_n = \frac{n}{2n+1}$

86) Write the first four terms of the sequences, if $a_n - a_{n-1} = n + 2, a_1 = 2$

87) If $a_{n-3} = 3n - 5$, find the nth term of the sequence.

88) Which term of the A.P. $5, 2, -1, \ldots$ is -85 ?

89) How many terms are there in the A.P. in which $a_1 = 11, a_n = 68, d = 3$?

90) If the nth term of the A.P. is $3n - 1$, find the A.P

91) xxvii) If $\frac{1}{a}, \frac{1}{b}$ and $\frac{1}{c}$ are in A.P., show that $b = \frac{2ac}{a+c}$

92) Sum the series $\frac{3}{\sqrt{2}} + 2\sqrt{2} + \frac{5}{\sqrt{2}} + \cdots + a_{13}$

93) Sum the series $1 + 4 - 7 + 10 + 13 - 16 + 19\ 22 - 25 + \cdots \ldots$ to 3 n terms.

94) Find the 11 th term of the sequence, $1 + i, 2, \frac{4}{1+i}$

95) Find G.M. between -2 and 8

96) For what value of $n, \frac{a^n + b^n}{a^{n-1} + b^{n-1}}$ is the positive geometric mean between a and b

97) Find the 9th term of the harmonic sequence $\frac{-1}{5}, \frac{-1}{3}, -1, \ldots$

98) Iv) If 5 is the harmonic mean between 2 and b, findxxvi) Find the nth term of the sequence, $\left(\frac{4}{3}\right)^2, \left(\frac{7}{3}\right)^2$ $\left(\frac{10}{3}\right)^2,$

99) Find $A \cdot M$. between $x - 3$ and $x + 5$

100) Find three A. Ms between 3 and 11 .

101) Sum the series $1.11 + 1.41 + 1.71 + \cdots . + a_{10}$

102) How many terms of the series $-7 + (-5) + (-3) + \cdots$ amount to 65?

103) Find the 12 th term of $1 + \mathrm{I}, 2\mathrm{i}, -2 + 2\mathrm{i}, \ldots \ldots$

104) Find G.M. between $-2\mathrm{i}$ and $8\mathrm{i}$

105) Insert two G.Ms. between 1 and 16

106) Find the 9th term of the harmonic sequence $\frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \ldots$

107) The first term of an H.P. is $-\frac{1}{3}$ and the fifth term is $\frac{1}{5}$. Find its 9th term.

108) If A, G and h are the arithmetic, geometric and harmonic means between a and b respectively, show that $\mathrm{G}^2 = \mathrm{AH}$

109) Find A, G, H and show that $G^2 = A \cdot H$. if (i) $a = -2, = b = 8$ (ii) $a = 2i, b = 4i$ (iii) $a = 9, b = 4$

110) Find the sequence if $a_n - a_{n-1} = n + 1$ and $a_4 = 14$

111) If $a_{n-2} = 3n - 11$, find the nth term of the sequence.

112) Find the sum of the infinite G.P. $2, \sqrt{2}, 1, \ldots$

113) Write in the factorial form: $n(n-1)(n-2) \ldots . (n - r + 1)$

114) Write in the factorial form: $\frac{(n+1)(n)(n-1)}{3.2.1}$

115) Find the value of n when: ${}^{n}\mathrm{P}_2 = 30$,

116) Find the value of n when: ${}^{n}P_4 : {}^{n-1}P_3 = 9:1$

117) How many arrangements of the letters of the words, taken all together, can be made: i) PAKPATTAN ii) PAKISTAN

118) In how many ways can 4 keys be arranged on a circular key ring?

119) Find A, G, H and verify that $A > G > H$ $(G > 0$, if (i) $a = 2, b = 8$ (ii) $a = \frac{2}{5}, b = \frac{8}{5}$

120) Find the number of terms in the A.P. if: $\mathrm{a}_1 = 3$, $\mathrm{d} = 47$ and $a_n = 59$

121) Find three A.Ms between $\sqrt{2}$ and $3\sqrt{2}$.

122) Find the nth and 8 th terms of H.P ; $\frac{1}{2}, \frac{1}{5}, \frac{1}{8}, \ldots$

123) Evaluate: $\frac{4!2!}{15!(15-15}$

124) Write in the factorial form: $(n+2)(n+1)(n)$

125) Find the value of n when: ${}^{11}P_n = 11.10.9$

126) How many signals can be given by 5 flags of different colours, using 3 flags at a time?

127) How many arrangements of the letters of the words, taken all together, can be made: i) MATHEMATICS ii) ASSASSINATION

128) How many necklaces can be made from 6 beads of different colours?

129) Evaluate: ${}^{n}C_4$

130) Find the value of n, when ${}^{n}C_{10} = \frac{12\times11}{2!}$

131) Find the value of n and r, when ${}^{n}C_r = 35$ and ${}^{n}P_r = 210$

132) Experiment: A die is rolled. The top shows Events Happening: (i) 3 or 4 dots (ii) dots less than 5.

133) Two dice are thrown. What is the probability that the sum of the number of dots appearing on them is 4 or 6?

134) If ${}^{n}C_8 = {}^{n}C_{12}$, find n.

135) A die is rolled. What is the probability that the dots on the top greater than 4?

136) Using the binomial theorem expand: $(a + 2\,b)^5$

137) Find the value of n, when ${}^{n}C_5 = {}^{n}C_4$

138) Find the value of n, when ${}^{n}C_{12} = {}^{n}C_6$

139) What is the probability that a slip of numbers divisible by 4 is picked from the slips bearing number 1,2,3, … ,10?

140) Using binomial theorem, find the values to three places of decimals $\sqrt{99}$

141) Evaluate $\sqrt[8]{30}$ correct to three places of decimal.

142) If $y = 1. + 2x + 4x^2 + 8x^3 + \cdots$ Show that $x = \frac{y-1}{2y}$

143) Expand up to four terms taking the values of x such that the expansion in each is valid. $(1-x)^{\frac{1}{2}}$

144) Using binomial theorem, find the values to three places of decimals $(1.03)^{\frac{1}{2}}$

145) If a, b, c, d are in G.P, prove that $a^2 - b^2, b^2 - c^2, c^2 - d^2$ are in G.P

SHORT QUESTIONS SECTION (C)

1	Verify $\text{Sin}^2\,30°:\text{Sin}^2\,45^0:\text{Sin}^2\,60°:\text{Sin}^2\,90° = 1:2:3:4$
2	Prove that $\sin 2\alpha = 2\sin\alpha\cos\alpha$
3	Prove that $\cos 20° + \cos 100° + \cos 140° = 0$
4	Solve the triangle ABC if $a = 32$, $b = 40$ & $c = 66$
5	Prove that: $\frac{\cos\theta-\sin\theta}{\cos\theta+\sin\theta} = \frac{\cot\theta-1}{\cot\theta+1}$
6	Convert $16°30'$ to circular measure
7	Solve equation $\sin 2x = \cos x$
8	Show that $r_1 = s\tan\alpha$
9	Prove that $r_2 = (s-b)\tan\frac{\beta}{2}$
10	Prove that $\frac{\sin 2\alpha}{1+\cos\alpha} = \tan\alpha$
11	Convert 21.256^0 to D ^{0} M' S" $''$
12	What is the Circular Measure of the angle between hands of a watch at $5O'$ clock?
13	Express $\sin(x+45°)\sin(x-45°)$ as sum or difference
14	Prove that: $\tan(\alpha+\beta) + \tan\gamma = 0$

15	If α, β, γ are the angles of $\triangle$ ABC, prove that $\tan\alpha + \tan\beta + \tan\gamma = \tan\alpha\tan\beta\tan\gamma$
16	Express $2\sin 7\theta\cos 3\theta$ as sum & difference.
17	Show that $\frac{\sin(360°-\theta)\cos(180°-\theta)\tan(180°+\theta)}{\sin(90°-\theta)\cos(90°-\theta)\tan(360°+\theta)} = 1$
18	Express $120'40''$ in radians
19	Define Radian.
20	Find θ, when $\ell = 10$ cm and $r = 2$ cm
21	State Fundamental Law of Trigonometry
22	What is the period of $3\cos\frac{x}{5}$?
23	Give the Cosine of Half the Angle in terms of the sides.
24	At the top of the cliff 80 m high, the angle of depression of a boat is $12°$. How far is the boat from the cliff?
25	Find the area of the triangle ABC, given the sides $a = 18, b = 24, c = 30$
26	Define Circum-Radius.
27	Show that $\cos^{-1}\frac{12}{13} = \sin^{-1}\frac{5}{13}$
28	Show that $\cos^{-1}(-x) = \pi - \cos^{-1}x$
29	Give or state hero's formula.
30	Prove that $\sec\theta\csc\theta\sin\theta\cos\theta = 1$
31	If α, β, γ are the angles of a triangle ABC then prove that $\sin(\alpha+\beta) = \sin\gamma$
32	Find the value of $\cos 15°$
33	State Fundamental Law of Trigonometry.
34	Prove that $R = \frac{abc}{4\Delta}$ 35. Convert $\frac{25\pi}{36}$ into the measure of sexagesimal system.
35	Solve $\sin x\cos x = \frac{\sqrt{3}}{4}$
36	Express $\sin 5x + \sin x$ as a product.
37	Convert $75°6'30''$ to radians
38	Write domain & range of $\cos x$
39	Write domain & range of $\tan x$
40	Solve the equation $\cot^2\theta = \frac{1}{3}$
41	Prove that $\tan(45° + A)\tan(45° - A) = 1$
42	Show that $(\tan\theta + \cot\theta)^2 = \sec^2\theta\operatorname{cosec}^2\theta$
43	Define In-circle
44	Find the Period of $\sin\frac{x}{5}$
45	Solve $\sin x + \cos x = 0$
46	Prove the identity $1 + \tan\alpha\tan 2\alpha = \sec 2\alpha$
47	Express $\cos 7\theta - \cos\theta$ as a product
48	Define Circum-circle
49	The area of a triangle is 2437 . If $a = 79, c = 97$ then find the angle β
50	Prove that $\sin\left(\theta + \frac{\pi}{6}\right) + \cos\left(\theta + \frac{\pi}{3}\right) = \cos\theta$
51	Show that $\cos(2\sin^{-1}x) = 1 - 2x^2$
52	If $\cot\theta = \frac{15}{8}$ & the terminal arm of the angle is not in I quad, find the values of $\cos\theta$ & $\operatorname{cosec}\theta$
53	Convert $54°45'$ into radians
54	Prove that $rr_1r_2r_3 = \Delta^2$
55	Express $2\sin 7\theta\sin 2\theta$ as a sum or difference
56	Define the Angle of Elevation
57	Convert $\frac{2\pi}{3}$ into radians
58	Find the solution of the equation $\tan^2\theta - \sec\theta - 1 = 0$ which lie in $[0, 2\pi]$
59	Show that $\frac{1-\sin\theta}{\cos\theta} = \frac{\cos\theta}{1+\sin\theta}$
60	A ladder leaning against a vertical wall makes an angle of 24^0 with the wall. If its foot is 5 m from the wall, find its length.
61	Express $\cos 12° + \cos 48°$ as a product
62	Find the period of $3\tan\frac{x}{7}$
63	Prove that $\frac{\cos 11° + \sin 11°}{\cos 11° - \sin 11°} = \tan 56°$

www.ilmkidunya.com

64	Prove that $\frac{\cos 8^\circ - \sin 8^\circ}{\cos 8^\circ + \sin 8^\circ} = \tan 37^\circ$
65	Prove that $\cos 2\theta = \frac{1-\tan^2\theta}{1+\tan^2\theta}$
66	Show that $\frac{\sin\alpha - \sin\beta}{\sin\alpha + \sin\beta} = \tan\left(\frac{\alpha-\beta}{2}\right)\cot\left(\frac{\alpha+\beta}{2}\right)$
67	Show that $\frac{\cos(90^\circ+\theta)\text{Sec}(-\theta)\tan(180^\circ-\theta)}{}$
68	Find the measure of the greatest angle, if sides of triangle are 16, 20, 33
69	The measures of side of a triangular plot are 413,214 & 375 meters. Find the measure of the corner angles of the plot.
70	Prove that $(r_1 + r_2)\tan\frac{\gamma}{2} = a$
71	Prove that $(r_3 + r)\cot\frac{\gamma}{2} = c$ 73. Prove that $abc(\sin\alpha + \sin\beta + \sin\gamma) = 4\Delta s$
72	Solve $4\cos^2 x - 3 = 0$
73	Solve the trigonometric equation $\sec^2\theta = \frac{4}{3}$
74	Verify $\sin^2\frac{\pi}{6} : \sin^2\frac{\pi}{4} : \sin^2\frac{\pi}{3} : \sin^2\frac{\pi}{2} = 1:2:3:4$
75	Find x, if $\tan^2 45^\circ - \cos^2 60^\circ = x\sin 45^\circ\cos 45^\circ\tan 60^\circ$
76	Verify $\sin^2\frac{\pi}{6} + \sin^2 + \text{Tan}^2\frac{\pi}{4} = 2$
77	Prove that $\sec^2 A + \text{cosec}^2 A = \sec^2 A\,\text{cosec}^2 A$
78	Show that $\tan^{-1} A + \cot^{-1} A = \frac{\pi}{2}$
79	Prove that $\frac{\tan\frac{\theta}{2} + \cot\frac{\theta}{2}}{\cot\frac{\theta}{2} - \tan\frac{\theta}{2}} = \sec\theta$
80	Prove that $\frac{\text{cosec}\,\theta + 2\,\text{cosec}\,2\theta}{\sec\theta} = \cot\frac{\theta}{2}$
81	Prove that $\frac{2\tan\theta}{1-\tan^2\theta} = 2\sin\theta\cos\theta$
82	Prove that $2\tan^{-1} A = \tan^{-1}\frac{2A}{1-A^2}$
83	Prove that $\cos^2\theta - \sin^2\theta = \frac{1-\tan^2\theta}{1+\tan^2\theta}$
84	Prove that $\tan^{-1} A - \tan^{-1} B = \tan^{-1}\frac{A-B}{1-AB}$
85	Give the range and domain of $\cos^{-1} x$
86	Prove that $\tan^{-1}\frac{120}{119} = 2\cos^{-1}\frac{12}{13}$
87	Show that $\sin(2\cos^{-1} x) = 2x\sqrt{1-x^2}$
88	Prove that $\cos 2\alpha = 2\cos^2\alpha - 1$
89	Write the Triple Angle Identity of $\tan 3\alpha$
90	Prove that $\sec\theta\,\text{cosec}\,\theta\sin\theta\cos\theta = 1$
91	What is the relation between a radian and a degree?
92	Is the relation $l = r\theta^\circ$ valid?
93	Convert $\frac{19\pi}{32}$ into sexagesimal system.
94	What is the Circular Measure of the angle between hands of a watch at $8O'$ clock?
95	A horse is tethered to a peg by a rope of 9 meters length & it can move in a circle with the peg as center. If the horse moves along the circumference of the circle, keeping the rope tight, how far will it have gone when the rope has turned an angle of 55° ?
96	Define Co-terminal Angles
97	Define Allied Angles
98	$\frac{1+\cos\theta}{1-\cos\theta} = (\text{cosec}\,\theta + \cot\theta)^2$

LONG QUESTIONS

Chapter 2:

Q.1 Prove that $p \vee (\sim p \wedge \sim q) \vee (p \wedge q) = p \vee (\sim p \wedge \sim q)$

Q.2 Convert $(A \cup B) \cup C = A \cup (B \cup C)$ into logical form and prove it by constructing the truth table.