

CHOITHRAM SCHOOL

CLASS : XI

SUBJECT : MATHEMATICS

ASSIGNMENT NO. 2

DATE OF ASSIGNMENT: 17/08/18

DATE OF SUBMISSION: 22/08/18

Q No.	Question	Weightage	Level
Q1	Simplify: $\frac{\cos(360^\circ - x) \operatorname{cosec}(180^\circ + x) \cot(90^\circ - x)}{\sec(90^\circ + x) \cos(-x)}$	1 mark	Knowledge
Q2	Solve: $\sin(-690^\circ) \cos(-300^\circ) + \cos(-750^\circ) \sin(-240^\circ)$	1 mark	Understanding
Q3	$\cos 24^\circ + \cos 55^\circ + \cos 125^\circ + \cos 204^\circ + \cos 300^\circ = 1/2$	1 mark	H.O.T.
Q4	Prove that : $\sin^2 \frac{\pi}{6} + \cos^2 \frac{\pi}{3} - \tan^2 \frac{\pi}{4} = \frac{-1}{2}$	2 marks	Knowledge
Q5	Prove that : $2\sin^2 \frac{3\pi}{4} + 2\cos^2 \frac{\pi}{4} + 2\sec^2 \frac{\pi}{3} = 10$	2 marks	Understanding
Q6	If in two circles, arcs of the same length subtend angles 60° and 75° at the centre, find the ratio of their radii.	2 marks	Logical Reasoning
Q7	If $\tan \alpha = \frac{1}{5}$ & $\tan \beta = \frac{1}{239}$, Show that $\tan (4\alpha - \beta) = 1$	2 marks	H.O.T.
Q8	Find the value of $\tan(22\frac{1}{2})^\circ$	3 marks	Understanding
Q9	Prove that : $\frac{1-\sin x}{1+\sin x} = \tan^2(\frac{\pi}{4} - \frac{x}{2})$	3 marks	H.O.T.
Q10	Prove the following by using the principle of mathematical induction for all $n \in N$ $3^{2n+2} - 8n - 9$ is divisible by 8	3 marks	Multi Conceptual
Q11	Prove that: $\cos 10x + \cos 8x + 3\cos 4x + 3\cos 2x = 8\cos x \cos^3 3x$	5 marks	Logical Reasoning
Q12	Prove the following by using the principle of mathematical induction for all $n \in N$ $\frac{1}{2} \tan\left(\frac{x}{2}\right) + \frac{1}{4} \tan\left(\frac{x}{4}\right) + \dots + \frac{1}{2^n} \tan\left(\frac{x}{2^n}\right) = \frac{1}{2^n} \cot\left(\frac{x}{2^n}\right) - \cot x$	5 marks	H.O.T.