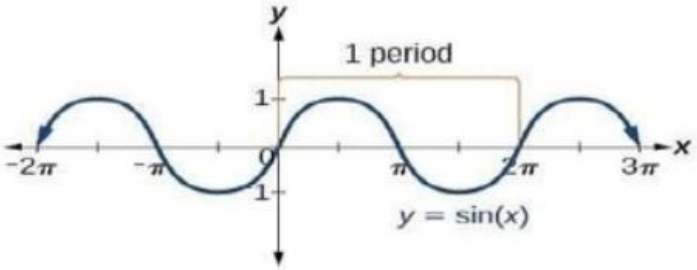
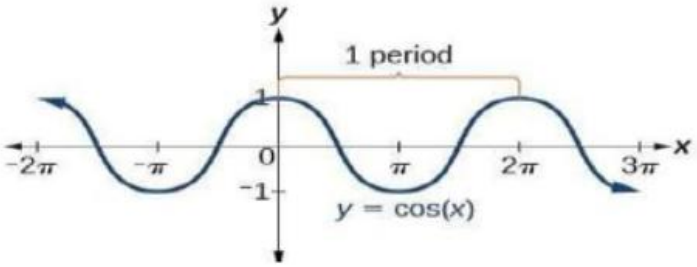
	BCM SCHOOL, BASANT AVENUE, DUGRI ROAD, LUDHIANA **Class XI (Trigonometric functions)**	
1.	Which of the following is not correct? (a) sin $\theta = -\frac{1}{5}$ (b) cos θ = 1 (c) sec $\theta = \frac{1}{2}$ (d) tan θ = 20	1
2.	Which of the following is correct? (a) sin 1° > sin 1 (b) sin 1° < sin 1 (c) sin 1° = sin 1 (d) sin 1° = $\frac{\pi}{18°}$ sin 1	1
3.	The greatest value of sin x cos x is (a) 1 (b) 2 (c) $\sqrt{2}$ (d) $\frac{1}{2}$	1
4.	Find the range of the function: f(x) = $\frac{1}{1-2\cos x}$	2
5.	Find the general solution of 1 + tan x = 0.	2
6.	If cos $(\alpha + \beta) = \frac{4}{5}$ and sin $(\alpha - \beta) = \frac{5}{13}$, where α, β lie between 0 and $\frac{\pi}{4}$, find the value of tan 2α.	3
7.	Find the value of $\left(1+\cos\frac{\pi}{8}\right)\left(1+\cos\frac{3\pi}{8}\right)\left(1+\cos\frac{5\pi}{8}\right)\left(1+\cos\frac{7\pi}{8}\right)$	3
8.	Prove that $\cos^2 x + \cos^2\left(x+\frac{2\pi}{3}\right) + \cos^2\left(x-\frac{2\pi}{3}\right) = \frac{3}{2}$	3
9.	Prove that $\cos\frac{\pi}{7}\cos\frac{2\pi}{7}\cos\frac{4\pi}{7} = -\frac{1}{8}$	5
10.	Sine and cosine functions can be used to model many real-life scenarios-radio waves, tides, musical tones, electrical signals. Following shown the graphs of sine and cosine curves. Looking to these graphs, answer the following questions:   (i) If we draw line y= 1/2, at how many points the graph of sine and this line intersect between interval [$-\pi$, π]. (ii) At how many points the graph of cosine cuts on X axis between (0, 2π)? (iii) If both sine and cosine curve are drawn on the same graph and on the same interval [-2π, 2π], then at how many points their graph will intersects? **OR** At how many points will be sin x = $\sqrt{2}$ in interval [$-\pi$, π]?	1 1 2 2