SHIKSHA CLASSES

BOARD QUESTION PAPER

Subject : Maths - I **Topic: 3 Trignometric Functions** **Total Marks : 20**

Class : XII **Time : 1 Hr.**

Section A

Q.1 : Choose the correct option : 4

i) The general solution of

$$\sin\left(x+\frac{\pi}{6}\right)=0 \text{ is}$$

a) $2n\pi \pm \frac{\pi}{6}$ b) $n\pi \pm \frac{\pi}{6}$ c) $n\pi - \frac{\pi}{6}$ d) $n\pi + \frac{\pi}{6}$

ii) The principal solutions of $\cot\theta = -\sqrt{3}$.

a) $\frac{\pi}{6}, \frac{11\pi}{6}$ b) $\frac{5\pi}{6}, \frac{11\pi}{6}$ c) $\frac{5\pi}{6}, \frac{\pi}{6}-$ d) $\frac{-5\pi}{6}, \frac{11\pi}{6}$

Q.2 : Solve the following questions: **2**

i) Find the general solutions of the following equations : $\sin\theta = \frac{1}{2}$

ii) Check $\cos 2\theta$ =-1 equations have solution or Not.

Section B

: Solve the following : (ANY2) 4

Q.3 : In ΔABC, if a = 18, b= 24 and c=30 then find the values of $\cos A$

Q.4 : Find the Principal values of $\sin^{-1}\left(\frac{1}{2}\right)$

Q.5 : Find the general solutions of the equation sinx = tanx

Section C

: Answer the following : (ANY 2) 6

Q.6 : Find the general solutions of the equation sec x = $\sqrt{2}$

Q.7 : Find x if $\sin\left(\sin^{-1}\frac{1}{5}+\cos^{-1}x\right)=1$

Q.8 : Find the cartesian coordinates of the point whose polar coordinates are $\left(1,\frac{\pi}{4}\right)$

Section D

: Answer the following : (ANY 1) 4

Q.9 : In any ΔABC prove that,

i) $a^2=b^2+c^2-2bc\cos A,$

ii) $b^2=c^2+a^2-2ca\cos B,$

iii) $c^2=a^2+b^2-2ab\cos C$

Q.10: Prove the following:

$$\tan^{-1}\left[\frac{\cos x+\sin x}{\cos x-\sin x}\right]=\frac{\pi}{4}+x$$

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