Comprehensive Test Series-03
Trigonometric Function

TIME: 1 hr. **MM: 30**

General Instructions:

- All Questions are compulsory.
- Marks are given alongwith the questions individually.
- Use of calculator is not permitted.

Prove the following

Q.1 $3\sin\frac{\pi}{6}\sec\frac{\pi}{3} - 4\sin\frac{5\pi}{6} + \cot\frac{\pi}{4} = 1$ (3)

Q.2 $\frac{\sin(x+y)}{\sin(x-y)} = \frac{\tan x + \tan y}{\tan x - \tan y}$ (3)

Q.3 $\frac{\sin 5x - 2\sin 3x + \sin x}{\cos 5x - cox} = \tan x$ (3)

Q.4 $\cos^2 2x - \cos^2 6x = \sin 4x.\ \sin 8x$ (3)

Q.5 $\frac{\sin x - \sin 3x}{\sin^2 x - \cos^2 x} = 2\sin x$ (3)

Q.6 $\cos 4x = 1 - 8\sin^2 x\ .\ \cos^2 x$ (3)

Q.7 $\frac{\cos 4x + \cos 3x + \cos 2x}{\sin 4x + \sin 3x + \sin 2x} = \cot 3x$ (3)

Q.8 $2\cos\frac{\pi}{13}\cos\frac{9\pi}{13} + \cos\frac{3\pi}{13} + \cos\frac{5\pi}{13} = 0$ (3)

Q.9 $(\cos x + \cos y)^2 + (\sin x - \sin y)^2 = 4\cos^2\frac{x+y}{2}$ (3)

Q.10 $\sin 3x + \sin 2x - \sin x = 4\sin x\cos\frac{x}{2}\cos\frac{3x}{2}$ (3)