BOARD PAPER QUESTIONS

1. Given $5 \cos A - 12 \sin A = 0$, evaluate without using tables:

$$\frac{\sin A + \cos A}{2 \cos A - \sin A}.$$ **[1995]**

2. If $2 \sin A - 1 = 0$, show that:

$\sin 3A = 3 \sin A - 4 \sin^3 A$. **[2001]**

3. Prove that: $1 - \frac{\cos^2 \theta}{1 + \sin \theta} = \sin \theta$. **[2001]**

4. If $\sin x = \frac{3}{5}$ and $\cos y = \frac{12}{13}$; evaluate

(a) secant^2 x (b) $\tan x + \tan y$. **[2003]**

5. Without using tables, find the value of

$14 \sin 30° + 6 \cos 60° - 5 \tan 45°$. **[2004]**

6. Prove that $(1 + \tan A)^2 + (1 - \tan A)^2 = 2 \sec^2 A$. **[2005]**

7. Prove that $\frac{\sin \theta \tan \theta}{1 - \cos \theta} = 1 + \sec \theta$. **[2006]**

8. Prove that identity: $\frac{\sec A - 1}{\sec A + 1} = \frac{1 - \cos A}{1 + \cos A}$. **[2007]**

9. Prove the identity:

$\frac{\sin A}{1 + \cos A} = \text{cosec } A - \cot A$. **[2008]**

10. Prove that following identity:

$\frac{\sin A}{1 + \cos A} + \frac{1 + \cos A}{\sin A} = 2 \text{ cosec } A$. **[2009]**

11. Prove that $\frac{\tan^2 \theta}{(\sec \theta - 1)^2} = \frac{1 + \cos \theta}{1 - \cos \theta}$. **[2012]**

12. Show that $\sqrt{\frac{1 - \cos A}{1 + \cos A}} = \frac{\sin A}{1 + \cos A}$. **[2000, 2013]**

13. Prove the identity

$(\sin \theta + \cos \theta)(\tan \theta + \cot \theta) = \sec \theta + \text{cosec } \theta$. **[2014]**

14. Prove that $\frac{\cos A}{1 + \sin A} + \tan A = \sec A$. **[2016]**

15. Prove that

$(1 + \cot \theta - \text{cosec } \theta)(1 + \tan \theta + \sec \theta) = 2$ **[2018]**

16. Prove that

$(\text{cosec } \theta - \sin \theta)(\sec \theta - \cos \theta)(\tan \theta + \cot \theta) = 1$ **[2019]**