**Question 15:**

$$2\left(\frac{\cos 65°}{\sin 25°}\right) - \frac{\tan 20°}{\cot 70°} - \sin 90°$$
$$+ \tan 5° \tan 35° \tan 60° \tan 55° \times \tan 85°$$

$$= 2\left(\frac{\cos(90° - 25°)}{\sin 25°}\right) - \frac{\tan(90° - 70°)}{\cot 70°} - 1 + \tan 5° \tan 35°$$
$$\times \sqrt{3} \times \tan 55° \times \tan 85°$$

$$= 2\left(\frac{\sin 25°}{\sin 25°}\right) - \frac{\cot 70°}{\cot 70°} - 1 + \tan 5° \tan 35° \times \sqrt{3} \times \tan(90° - 35°) \times \tan(90° - 5°)$$

$$= 2 - 1 - 1 + \tan 5° \tan 35° \times \sqrt{3} \times \cot 35° \cot 5°$$

$$= 0 + \tan 5° \tan 35° \times \sqrt{3} \times \frac{1}{\tan 35°} \times \frac{1}{\tan 5°} = \sqrt{3}$$

**Question 16:**

$$\frac{\cos 70°}{\sin 20°} + \frac{\cos 55° \operatorname{cosec} 35°}{\tan 5° \tan 25° \tan 45° \tan 65° \tan 85°}$$

$$= \frac{\cos(90° - 20°)}{\sin 20°} + \frac{\cos 55° \operatorname{cosec}(90° - 55°)}{\tan 5° \tan 25° \tan 45° \tan(90° - 25°) \tan(90° - 5°)}$$

$$= \frac{\sin 20°}{\sin 20°} + \frac{\cos 55° \sec 55°}{\tan 5° \tan 25° \tan 45° \times \cot 25° \cot 5°}$$

$$= 1 + \frac{\cos 55° \times \dfrac{1}{\cos 55°}}{\tan 5° \tan 25° \times 1 \times \dfrac{1}{\tan 25°} \times \dfrac{1}{\tan 5°}} = 1 + 1 = 2$$

**Question 17:**

$$\frac{\sin 70°}{\cos 20°} + \frac{\operatorname{cosec} 36°}{\sec 54°} - \frac{2 \cos 43° \operatorname{cosec} 47°}{\tan 10° \tan 40° \tan 50° \tan 80°}$$

$$= \frac{\sin(90° - 20°)}{\cos 20°} + \frac{\operatorname{cosec}(90° - 54°)}{\sec 54°}$$
$$- \frac{2 \cos 43° \operatorname{cosec}(90° - 54°)}{\tan 10° \tan 40° \tan(90° - 40°) \tan(90° - 10°)}$$

$$= \frac{\cos 20°}{\cos 20°} + \frac{\sec 54°}{\sec 54°} - \frac{2 \cos 43° \sec 43°}{\tan 10° \tan 40° \cot 40° \cot 10°}$$

$$= 1 + 1 - \frac{2 \times \cos 43° \times \dfrac{1}{\cos 43°}}{\tan 10° \tan 40° \times \dfrac{1}{\tan 40°} \times \dfrac{1}{\tan 10°}}$$

$$= 1 + 1 - 2 = 0$$

********** END *********