

BOARD OF INTERMEDIATE & SECONDARY EDUCATION, SAHIVAL

SUBJECT: MATH EXAM Inter Annual 2022 CLASS: Inter I-II
GROUP: I DATE: 21-12-22

(GENERAL INSTRUCTIONS FOR MARKING KEY)

8(a) L.H.S

$$\frac{\tan \theta + \sec \theta - 1}{\tan \theta - \sec \theta + 1}$$

Multiplying and dividing
by $\tan \theta + \sec \theta$

$$= \frac{(\tan \theta + \sec \theta - 1)(\tan \theta + \sec \theta)}{(\tan \theta - \sec \theta + 1)(\tan \theta + \sec \theta)} \quad (1M)$$

$$= \frac{(\tan \theta + \sec \theta - 1)(\tan \theta + \sec \theta)}{\tan^2 \theta + \sec^2 \theta - \sec \theta \tan \theta - \sec \theta \tan \theta + \sec^2 \theta + 1}$$

$$= \frac{(\tan \theta + \sec \theta - 1)(\tan \theta + \sec \theta)}{\tan^2 \theta + \tan^2 \theta - \sec^2 \theta + \sec^2 \theta} \quad (2M)$$

$$= \frac{(\tan \theta + \sec \theta - 1)(\tan \theta + \sec \theta)}{\tan^2 \theta + \sec^2 \theta - 1 - \sec^2 \theta} \quad (1M)$$

$$= \frac{(\tan \theta + \sec \theta - 1)(\tan \theta + \sec \theta)}{(\tan \theta + \sec \theta - 1)}$$

$$= \tan \theta + \sec \theta \quad (1M)$$

= L.H.S or any alternate method

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تم نے درجہ اولیہ پڑچ (انتخابی و عمومی) اور مہارت کے حوالے سے مکمل طور پر تکرار کی ہے۔ کسی قسم کی غلطی نہ ہے۔

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(b) L.H.S

$$\cos 20^\circ \cos 40^\circ \cos 80^\circ$$

$$= \frac{1}{2} (2 \cos 40^\circ \cos 20^\circ) \cos 80^\circ$$

$$= \frac{1}{2} [\cos 60^\circ + \cos 20^\circ] \cos 80^\circ \quad (1M)$$

$$= \frac{1}{2} \left[\frac{1}{2} \cos 80^\circ + \cos 80^\circ \cos 20^\circ \right]$$

$$= \frac{1}{4} [\cos 80^\circ + 2 \cos 80^\circ \cos 20^\circ] \quad (1M)$$

$$= \frac{1}{4} [\cos 80^\circ + (\cos 100^\circ + \cos 60^\circ)]$$

$$= \frac{1}{4} [\cos 80^\circ + \cos 100^\circ + \frac{1}{2}] \quad (1M)$$

$$= \frac{1}{4} [\cos 80^\circ + \cos (180^\circ - 80^\circ) + \frac{1}{2}] \quad (1M)$$

$$= \frac{1}{4} [\cos 80^\circ - \cos 80^\circ + \frac{1}{2}]$$

$$= \frac{1}{8} \quad (1M)$$

= R.H.S