

Trigonometry-2
Model Exam Question paper - 2

11th Standard

Business Maths

Reg.No. :

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I. Answer all the questions

Time : 00:45:00 Hrs

Total Marks : 35

Part-A

7 x 1 = 7

- 1) $\sin(90^\circ + \theta)\sec(360^\circ - \theta) =$
(a) $\operatorname{cosec}\theta$ (b) 1 (c) -1 (d) $\cos\theta$
- 2) $\sec(\theta - \pi) =$
(a) $\sec\theta$ (b) $-\operatorname{cosec}\theta$ (c) $\operatorname{cosec}\theta$ (d) $-\sec\theta$
- 3) When $\sin A = \frac{1}{\sqrt{2}}$, between 0° and 360° the two values of A are
(a) 60° and 135° (b) 135° and 45° (c) 135° and 175° (d) 45° and 225°
- 4) $\cos(2n\pi + \theta) = \sin\alpha$ then
(a) $\theta - \alpha = 90^\circ$ (b) $\theta = \alpha$ (c) $\theta + \alpha = 90^\circ$ (d) $\alpha - \theta = 90^\circ$
- 5) $\frac{\tan 15^\circ - \tan 75^\circ}{1 + \tan 15^\circ \tan 75^\circ} =$ is equal to
(a) $\frac{1+\sqrt{3}}{1-\sqrt{3}}$ (b) $\frac{1+2\sqrt{3}}{1-2\sqrt{3}}$ (c) $-\sqrt{3}$ (d) $\sqrt{3}$
- 6) The value of $\tan 453^\circ$ is
(a) $\frac{1+\sqrt{3}}{1-3\sqrt{3}}$ (b) $\frac{1+\sqrt{3}}{\sqrt{3}-1}$ (c) $\frac{\sqrt{3}-1}{1-\sqrt{3}}$ (d) 1
- 7) The value of $\cos 9^\circ \cos 6^\circ - \sin 9^\circ \sin 6^\circ$ is
(a) 0 (b) $\frac{\sqrt{3}+1}{4}$ (c) $\sin 75^\circ$ (d) $\sin 15^\circ$

Part-B

6 x 2 = 12

- 8) If $A = 30^\circ$ verify that
 $\cos 3A = 4\cos^3 A - 3\cos A$
- 9) If $A = 30^\circ$, verify that
 $\sin 3A = 3\sin A - 4\sin^3 A$
- 10) If $A = 30^\circ$, verify that
 $\tan 2A = \frac{2\tan A}{1 - \tan^2 A}$
- 11) Find $4\cot^2 45^\circ - \sec^2 60^\circ + \sin^3 30^\circ$
- 12) Find $\cos \frac{\pi}{4} \cos \frac{\pi}{3} - \sin \frac{\pi}{4} \sin \frac{\pi}{3}$
- 13) If $\sec A + \tan A = \frac{3}{2}$ prove that $\tan A = \frac{5}{12}$

Part-C

2 x 3 = 6

- 14) If $\sec^2 \theta = 2 + 2 \tan \theta$ find $\tan \theta$
- 15) Prove that $\sin 420^\circ \cos 390^\circ - \cos(-300^\circ) \sin(-330^\circ) = \frac{1}{2}$

Part-D

2 x 5 = 10

- 16) Show that $\frac{\cos \theta}{1 - \cot A} + \frac{\cot \theta}{1 - \tan A} = 1 + \operatorname{cosec} \theta \sec \theta$
- 17) Show that $3(\sin x - \cos)^4 + 6(\sin + \cos)^2 + 4(\sin^6 x + \cos^6 x) = 13$
