

Class 11
9-8-2016

Second Unit Test (First Term) in MATHEMATICS

Time : 1 hr.
M. Marks : 20

GENERAL INSTRUCTIONS:

1. Attempt all the questions.
2. Section A consists of 4 questions of 1 mark each.
3. Section B consists of 6 questions of 2 marks each.
4. Section C consists of 2 questions of 3 marks each.

SECTION - A (1 x 4 = 4 marks)

1. Convert 6^c in degree measure.
2. If $\sin x = \frac{-3}{5}$, $\pi < x < \frac{3\pi}{2}$, find the value of $\frac{\sec x - 1}{\sec x + 1}$.
3. Evaluate : $\tan 22 \frac{1}{2}^\circ$.
4. Find the value of $\sin 765^\circ$.

SECTION - B (2 x 5 = 10 marks)

5. If $\cos \alpha = \frac{13}{14}$, $\cos \beta = \frac{1}{7}$, where α and β are acute angles, show that $\alpha - \beta = \frac{\pi}{3}$.
6. Prove that : $\tan 70^\circ = 2 \tan 50^\circ + \tan 20^\circ$.
7. Prove that : $8 \cos 40^\circ \cos 80^\circ \cos 160^\circ = -1$.
8. Prove that : $2 \cos \frac{\pi}{13} \cos \frac{9\pi}{13} + \cos \frac{3\pi}{13} + \cos \frac{5\pi}{13} = 0$.
9. Solve : $\sin 3\theta + \sin 7\theta = \sin 5\theta$.

SECTION - C (3 x 2 = 6 marks)

10. Prove that : $\cos^4 \frac{\pi}{8} + \cos^4 \frac{3\pi}{8} + \cos^4 \frac{5\pi}{8} + \cos^4 \frac{7\pi}{8} = \frac{3}{2}$.
11. Prove that : $\tan 9^\circ - \tan 27^\circ - \tan 63^\circ + \tan 81^\circ = 4$.

-X-X-X-X-X-X