MATHEMATICS

DPP

DAILY PRACTICE PROBLEMS

DPP No. 33

Total Marks : 23

Max. Time : 24 min.

Topics : Trigonometric Ratio & Identities, Sequence & Series

Type of Questions		**M.M., Min.**
Single choice Objective (no negative marking) Q.1,2,3,4,5	**(3 marks, 3 min.)**	**[15, 15]**
Fill in the Blanks (no negative marking) Q.6	**(4 marks, 4 min.)**	**[4, 4]**
Subjective Questions (no negative marking) Q.7	**(4 marks, 5 min.)**	**[4, 5]**

1. If $4^{\sin 2x+2\cos^2 x} + 4^{1-\sin 2x+2\sin^2 x} = 65$, then (sin 2x + cos 2x) has the value equal to :

(A) –1 (B) 2 (C) $\sqrt{2}$ (D) 1

2. If $P = \cos\frac{\pi}{20} \cdot \cos\frac{3\pi}{20} \cdot \cos\frac{7\pi}{20} \cdot \cos\frac{9\pi}{20}$ &

$Q = \cos\frac{\pi}{11} \cdot \cos\frac{2\pi}{11} \cdot \cos\frac{4\pi}{11} \cdot \cos\frac{8\pi}{11} \cdot \cos\frac{16\pi}{11}$, then $\frac{P}{Q}$ is :

(A) not defined (B) 1 (C) 2 (D) none of these

3. A triangle ABC is such that $\sin(2A + B) = \frac{1}{2}$. If A, B, C are in A.P. then the angle A, B, C are respectively.

(A) $\frac{5\pi}{12}, \frac{\pi}{4}, \frac{\pi}{3}$ (B) $\frac{\pi}{4}, \frac{\pi}{3}, \frac{5\pi}{12}$ (C) $\frac{\pi}{3}, \frac{\pi}{4}, \frac{5\pi}{12}$ (D) $\frac{\pi}{3}, \frac{5\pi}{12}, \frac{\pi}{4}$

4. The solution set of the equation $4\sin\theta.\cos\theta - 2\cos\theta - 2\sqrt{3}\sin\theta + \sqrt{3} = 0$ in the interval $(0, 2\pi)$ is

(A) $\left\{\frac{3\pi}{4}, \frac{7\pi}{4}\right\}$ (B) $\left\{\frac{\pi}{3}, \frac{5\pi}{3}\right\}$ (C) $\left\{\frac{3\pi}{4}, \pi, \frac{\pi}{3}, \frac{5\pi}{3}\right\}$ (D) $\left\{\frac{\pi}{6}, \frac{5\pi}{6}, \frac{11\pi}{6}\right\}$

5. First, second and seventh terms of an A.P. (all the terms are distinct), whose sum is 93, are in G.P. Fourth term of this G.P. is

(A) 21 (B) 31 (C) 75 (D) 375

6. Exact value of $\tan 200^\circ (\cot 10^\circ - \tan 10^\circ)$ is _____ .

7. Find the value of $\sin^4\frac{\pi}{16} + \sin^4\frac{3\pi}{16} + \sin^4\frac{5\pi}{16} + \sin^4\frac{7\pi}{16}$

Answers Key

1. (A) **2.** (C) **3.** (B) **4.** (D) **5.** (D) **6.** 2

7. $\frac{3}{2}$