MATHEMATICS

DPP

DAILY PRACTICE PROBLEMS

DPP No. 29

Total Marks : 34

Max. Time : 35 min.

Topics : Trigonometric Ratio & Identities, Sequence & Series

Type of Questions		**M.M., Min.**
Multiple choice objective (no negative marking) Q.1,2	**(5 marks, 4 min.)**	**[10, 8]**
Subjective Questions (no negative marking) Q.3,4,6	**(4 marks, 5 min.)**	**[12, 15]**
Fill in the Blanks (no negative marking) Q.5	**(4 marks, 4 min.)**	**[4, 4]**
Match the Following (no negative marking) Q.7	**(8 marks, 8 min.)**	**[8, 8]**

1. If $\sec A = \frac{17}{8}$ and $\operatorname{cosec} B = \frac{5}{4}$, then $\sec(A + B)$ can have the value equal to

(A) $\frac{85}{36}$ (B) $-\frac{85}{36}$ (C) $-\frac{85}{84}$ (D) $\frac{85}{84}$

2. If S_n denotes the sum of first n terms of an arithmetic progression and a_n denotes the n^{th} term of the same A.P. given $S_n = n^2 p$; where $p, n \in N$, then

(A) $a_1 = p$ (B) common difference = 2p (C) $S_p = p^3$ (D) $a_p = 2p^2 - p$

3. Prove that $\frac{\sin A + 2\sin 3A + \sin 5A}{\sin 3A + 2\sin 5A + \sin 7A} = \frac{\sin 3A}{\sin 5A}$

4. Prove that $2\cos\frac{\pi}{13}\cos\frac{9\pi}{13} + \cos\frac{3\pi}{13} + \cos\frac{5\pi}{13} = 0$

5. If $\tan 25° = a$, then the value of $\frac{\tan 205° - \tan 115°}{\tan 245° + \tan 335°}$ in terms of 'a' is _____.

6. Find the sum of the series $(2^2 - 1)(6^2 - 1) + (4^2 - 1)(8^2 - 1) + \ldots\ldots + (100^2 - 1)(104^2 - 1)$

7. **Column - I** **Column-II**

The roots of the equation $x^3 + bx^2 + cx + d = 0$ are

(A)	in A.P. if	(p)	$b^3 = 27d$
(B)	in G.P. if	(q)	$2b^3 - 9bc + 27d = 0$
(C)	in H.P. if	(r)	$27d^3 = 9bcd^2 - 2c^3d$
(D)	equal if	(s)	$b^3d = c^3$

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Answers Key

1. (A)(B)(C)(D) **2.** (A)(B)(C)(D) **5.** 1

6. $\frac{1}{10}$ [99 . 101 . 103 . 105 . 107 + 1 . 3 . 5 . 7]

7. (A) $\rightarrow$ (q), (B) $\rightarrow$ (s), (C) $\rightarrow$ (r), (D) $\rightarrow$ (p,q,r,s)

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