# MATHEMATICS

**DPP**
DAILY PRACTICE PROBLEMS

# DPP No. 20

**Total Marks : 23**

**Max. Time : 25 min.**

**Topic : Sequence & Series**

| Type of Questions | | M.M., Min. |
|---|---|---|
| Comprehension (no negative marking) Q.1 to Q.3 | (3 marks, 3 min.) | [9, 9] |
| Single choice Objective (no negative marking) Q.4,5 | (3 marks, 3 min.) | [6, 6] |
| Subjective Questions (no negative marking) Q.6,7 | (4 marks, 5 min.) | [8, 10] |

**COMPREHENSION (Q.No. 1 to 3)**

Given a special squence a, b, c, d such that first three number are in A.P. while the last three are in G.P. If the first number is 18 and common ratio of G.P. is $\dfrac{1}{2}$, then answer the following questions.

**1.** The value of c + d is given by

(A) 9        (B) 10        (C) 11        (D) 12

**2.** If three A.M.s are inserted between b and c, then the third A.M. is

(A) $\dfrac{11}{2}$        (B) $\dfrac{13}{2}$        (C) $\dfrac{15}{2}$        (D) $\dfrac{17}{2}$

**3.** If four G.M.s are inserted between $k_1 c$ and $k_2 d$, where $k_2 = 64 k_1$, then the common ratio of G.P. so formed is

(A) 2        (B) $\dfrac{3}{2}$        (C) $\dfrac{2}{3}$        (D) $\dfrac{1}{3}$

**4.** If the sum of first three terms of a G.P. is to the sum of first six terms as 125 : 152, then the common ratio of the G.P. is

(A) $\dfrac{3}{5}$        (B) $\dfrac{5}{3}$        (C) $\dfrac{2}{5}$        (D) $\dfrac{5}{2}$

**5.** $61^{st}$ term of the H.P. $\dfrac{4}{3}, \dfrac{3}{2}, \dfrac{12}{7}, ...........$ is

(A) $-\dfrac{17}{4}$        (B) $\dfrac{34}{3}$        (C) $\dfrac{3}{34}$        (D) $-\dfrac{4}{17}$

**6.** All terms of the arithmetic progression are natural numbers. The sum of its nine consecutive terms, beginning with the first , is larger than 200 and smaller than 220 . Find the progression, if its second term is equal to 12.

**7.** Let $x_1$ & $x_2$ be the roots of the equation $x^2 - 3x + A = 0$ and let $x_3$ & $x_4$ be the roots of the equation $x^2 - 12x + B = 0$. It is known that the numbers $x_1, x_2, x_3, x_4$ (in the same order) form an increasing G.P. Find A and B.

## Answers Key

**1.** (A)    **2.** (C)    **3.** (A)    **4.** (A)

**5.** (D)    **6.** 8, 12, 16, .....    **7.** A = 2, B = 32