1. The sum of the first 20 terms common between the series $3 + 7 + 11 + 15 + \ldots\ldots$ and $1 + 6 + 11 + 16 + \ldots\ldots$ is

(1) 4000 (2) 4200

(3) 4220 (4) 4020

2. If a_1, a_2, a_3, a_4, a_5 and a_6 are six arithmetic means between 3 and 31, then $a_6 - a_5$ and $a_1 + a_6$ are respectively equals to

(1) 5 and 34 (2) 4 and 35

(3) 4 and 34 (4) 4 and 36

3. Geometric mean of $7, 7^2, 7^3, \ldots 7^n$ is

(1) $7^{\frac{n+1}{2}}$ (2) 7

(3) $7^{n/2}$ (4) 7^n

4. If m arithmetic means (A.Ms) and three geometric means (G.Ms) are inserted between 3 and 243 such that 4^{th} A.M. is equal to 2^{nd} G.M., then m is equal to:

5. $\log_3 2, \log_6 2$ and $\log_{12} 2$ are in

(1) AP (2) GP

(3) HP (4) AGP

6. The 4th term of a HP is 3/5 and 8th term is 1/3, then its 6th term is

(1) 1/6 (2) 3/7

(3) 1/7 (4) 3/5

7. The minimum value of $4^x + 4^{1-x}$, $x \in R$, is

(1) 2 (2) 4

(3) 1 (4) None of these

8. If $a + 2b + 3c = 12$ $(a, b, c \in R^+)$ then ab^2c^3 is -

(1) $\geq 2^3$ (2) $\geq 2^6$

(3) $\leq 2^6$ (4) None of these

9*. Find the sum of the following series: 5 + 55 + 555 + ... to 100 terms.

(1) $\frac{5}{81}[10^{51} - 910]$ (2) $\frac{5}{81}[10^{101} - 900]$

(3) $\frac{5}{27}[10^{101} - 910]$ (4) $\frac{5}{81}[10^{101} - 910]$

10*. Sum of the series $S = 1 + \frac{1}{2}(1 + 2) + \frac{1}{3}(1 + 2 + 3) + \frac{1}{4}(1 + 2 + 3 + 4)$ ..... up to 20 terms is

(1) 110 (2) 111

(3) 115 (4) 116

*Note: Question with * denotes it is optional but good to solve.*