

SECTION – A (1 × 5 = 5)

1. The minimum value of $4^x + 4^{1-x}$, $x \in \mathbb{R}$, is
(a) 2 (b) 4 (c) 1 (d) 0
2. If 9 times the 9th term of an A.P. is equal to 13 times the 13th term, then the 22nd term of the A.P. is
(a) 0 (b) 22 (c) 220 (d) 198
3. The third term of G.P. is 4. The product of its first 5 terms is
(a) 4^3 (b) 4^4 (c) 4^5 (d) None of these
4. Let S_n denote the sum of the first n terms of an A.P. If $S_{2n} = 3S_n$ then $S_{3n} : S_n$ is equal to
(a) 4 (b) 6 (c) 8 (d) 10
5. If $x, 2y, 3z$ are in A.P., where the distinct numbers x, y, z are in G.P. then the common ratio of the G.P. is
(a) 3 (b) $1/3$ (c) 2 (d) $1/2$

SECTION – B (2 × 2 = 4)

6. Show that $(x^2 + xy + y^2)$, $(z^2 + xz + x^2)$ and $(y^2 + yz + z^2)$ are consecutive terms of an A.P., if x, y and z are in A.P.
7. Which term of the G.P., 2,8,32, ... up to n terms is 131072?

SECTION – C (3 × 2 = 6)

8. The sum of first three terms of a G.P. is $13/12$ and their product is -1 . Find the common ratio and the terms.
9. If the p^{th} , q^{th} and r^{th} terms of a G.P. are a, b and c , respectively. Prove that $a^{q-r} b^{r-p} c^{p-q} = 1$.

SECTION – D (1 × 5 = 5)

10. Find the sum to n terms of the sequence, 7, 77, 777, 7777... .