ASSIGNMENTS

CLASS XI

SEQUENCE AND SERIES

Q1 Two numbers whose arithmetic mean is 34 and the geometric mean is 16 are

(a) 16,16 (b) 64,4

(c) 32,36 (d) 48,20

Q2. What does the series $1 + 3^{-\frac{1}{2}} + 3 + \frac{1}{3\sqrt{3}} + \cdots$ represents?

(a) AP (b) GP

(c) HP (d) None of these

Q3 If the sequence $\{S_n\}$ is a geometric progression and $S_2 S_{11} = S_p S_8$ then what is the value of p?

(a) 1 (b) 3

(c) 5 (d) Cannot be determined

Q4 The angles of a triangle are in AP and the least angle is 30°. What is the greatest angle (in radian)?

(a) $\frac{\pi}{2}$ (b) $\frac{\pi}{3}$

(c) $\frac{\pi}{4}$ (d) π

Q5 The sum of the series formed by the sequence $3, \sqrt{3}, 1, \ldots\ldots$ upto infinity is

(a) $\frac{3\sqrt{3}(\sqrt{3}+1)}{2}$ (b) $\frac{3\sqrt{3}(\sqrt{3}-1)}{2}$

(c) $\frac{3(\sqrt{3}+1)}{2}$ (d) $\frac{3(\sqrt{3}-1)}{2}$

Q6 Let $f(x) = ax^2 + bx + c$ such that $f(1) = f(-1)$ and a,b,c are in Arithmetic Progression (AP) .Then the value of b is :

(a) -1 (b) 0

(c) 1 (d) Cannot be determined due to insufficient data

Q7 What is the sum of n terms of the series $\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32} + \cdots$?

(a) $\frac{n(n-1)}{\sqrt{2}}$ (b) $\sqrt{2}n(n+1)$

(c) $\frac{n(n+1)}{\sqrt{2}}$ (d) $\frac{n(n-1)}{2}$

Q8 Given that $\log_x y, \log_z x, \log_y z$ are in GP , $xyz = 64$ and x^3, y^3, z^3 are in AP .Which one of the following is correct? xy, yz, zx *are*

(a) In AP only (b) In GP only

(c) In both AP and GP (d) Neither in AP nor GP

Q9 If α *and* β are the roots of the equation $x^2 - q(1+x) - r = 0$, then what is the value of $(1+\alpha)(1+\beta)$?

(a) 1-r (b) q-r

(c) 1+r (d) q+r

Q10 How many real roots does the quadratic equation $f(x) = x^2 + 3|x| + 2 = 0$

have?

(a) One (b) Two

(c) Four (d) No real root

Q11 What is the 20th term of the sequence defined by a_n=(n-1) (2-n) (3+n) ?

(a) 7866 (b) -7866

(c) 7688 (d) None of these

Q12 Arithmetic mean of 4 and 16 is

(a) 10 (b) 12

(c) 14 (d) None of these I

If the sum of a certain number of terms of the A.P .25,22,19,….is 116. Find the last term.

(a) 5 (b) 4

(c) 6 (d) None of these

Q13 The arithmetic mean of two distribution of 100 and 200 items are 50 and 70 respectively. Their combine mean will be-

(a) 68.7 (b) 62.5 (c) 61.4 (d) 63.3

Q14 If β, 2, 2m are in G.P, then what is the value of $\beta\sqrt{m}$

(a) 1 (b) 2
(c) 4 (d) 6

Q15 What is the sum of the series

0.5 + 0.55 +0.555 + 0.5555 +----------+ n terms

(a) $\frac{5}{9}\left[n-\frac{2}{9}\left(1-\frac{1}{10^n}\right)\right]$ (b) $\frac{1}{9}\left[5-\frac{2}{9}\left(1-\frac{1}{10^n}\right)\right]$

(c) $\frac{1}{9}\left[n-\frac{5}{9}\left(1-\frac{1}{10^n}\right)\right]$ (d) $\frac{5}{9}\left[n-\frac{1}{9}\left(1-\frac{1}{10^n}\right)\right]$

Directions (Q.Nos.16 to 20) Given that $\log_x y$, $\log_z x$, $\log_y z$ are in Gp , xyz = 64 and x^3, y^3, z^3 are in AP.

Q16 which one of the following is correct ?x , y , and z are

(a) In AP only (b) In GP only

(c) In both AP and GP (d) Neither AP nor GP

Q17 Which one of the following is correct ?xy, yz and zx are

(a) In AP only (b) In GP only

(b) In both AP and GP (d) Neither AP nor GP

Q18 The value of the infinite product $6^{1/2}$ x $6^{1/2}$ x $6^{3/8}$ x $6^{1/4}$ x ----------is

(a) 6 (b) 36 (c) 216 (d)∞

Q19 If the nth term of an AP is $\frac{(3+n)}{4}$, then the sum of first 105 terms is

(a) 270 (b) 735 (c) 1409 (d) 1470

Q20 What is the sum of n terms of the series $\sqrt{2}$ + $\sqrt{8}$ +$\sqrt{18}$ + $\sqrt{32}$+ ---------

?Q

(a)$\frac{n\,(n-1\,)}{\sqrt{2}}$ (b)$\sqrt{2}$ n (n+ 1) (c)$\frac{n\,(n+1\,)}{\sqrt{2}}$ (d)$\frac{n\,(n-1\,)}{2}$

If p, q, r are in one GP and a, b, c are in another GP, then ap, bq, cr are in

(a) AP (b) GP (c) HP (d) None of these

Q21 In a G. P. of positive terms, if any term is equal to the sum of the next two terms. Then the common ratio of the G.P. is

(a) sin 18° (b) 2 cos 18°

(c) cos 18° (d) 2 sin 18°

Q22 In an A. P. the pth term is q and the (p + q)th term is 0. Then the qth term is

(a) –p (b) p

(c) p + q (d) p – q

Q23 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