Topic Sequence & Series

(1) If in a AP, the first term is 6 and the c.d is $-\frac{4}{3}$, find the fourth term

A) $\frac{2}{3}$ B) 2 ✓ C) $-\frac{2}{3}$ D) $\frac{14}{3}$

(2) The value obtained by subtracting the 10th term of an AP from the 17 term is 56. Find the c.d

A) 7 B) 16 C) 9 D) 8 ✓

(3) $G_1, G_2, \ldots G_n$ are said ~~to~~ be n geometric means between a & b if $a, G_1, G_2, \ldots G_n, b$ is

A) a sequence B) not sequence C) G.P ✓ D) A.P

(4) If A, G, H are arithmetic, geometric, and harmonic means between a and b respectively, then A, G, H are

A) ✓ in G.P b) in A.P c) in H.P d) Real numbers

(5) $2^1 + 2^2 + 2^3 + \ldots + 2^n =$

A) $2(2^n - 1)$ ✓ B) $2(2^{n-1} - 1)$ C) $2(2^{n+1} - 1)$ D) None

(6) No terms of a Harmonic sequence can be

a) 1 b) 2 c) 3 D) 0 ✓

(7) In an HP, p^{th} term is q and the q^{th} term is p. Then pq^{th} term is

A) 0 ✓ B) 1 C) pq D) pq(p+q)

(8) If $\log 2$, $\log(2^x-1)$ and $\log(2^x+3)$ are in AP, then $x =$

A) $\frac{5}{2}$ $\log_2 5$ B) $\log_2 5$ C) $\log_3 2$ D) $\frac{3}{2}$

(9) Sum of infinite terms of a GP is 12. If the first term is 8, what is the 4th term of this GP?

A) $\frac{8}{27}$ B) $\frac{4}{27}$ C) $\frac{8}{20}$ D) $\frac{1}{3}$

(10) If the n^{th} term of GP $5, -\frac{5}{2}, \frac{5}{4}, \frac{-5}{8}, \ldots$ is $\frac{5}{1024}$, then the value of n is

A) 11 B) 10 C) 9 D) 4

(11) The sum of infinite terms of GP $\frac{\sqrt{2}+1}{\sqrt{2}-1}, \frac{1}{2-\sqrt{2}}, \frac{1}{2}, \ldots$ is

A) $\sqrt{2}(\sqrt{2}+1)^2$ B) $(\sqrt{2}+1)^2$ C) $5\sqrt{2}$ D) $3\sqrt{2}+\sqrt{5}$

(12) If $a_1, a_2, a_3, \ldots a_{n+1}$ are in AP then

$\frac{1}{a_1 a_2} + \frac{1}{a_2 a_3} + \ldots + \frac{1}{a_n a_{n+1}}$ is

A) $\frac{n-1}{a_1 a_{n+1}}$ B) $\frac{1}{a_1 a_{n+1}}$ C) $\frac{n+1}{a_1 a_{n+1}}$ D) $\frac{n}{a_1 a_{n+1}}$

(13) If $\frac{a}{b}, \frac{b}{c}, \frac{c}{a}$ are in HP then

A) a^2b, c^2a, b^2c are in AP

B) a^2b, b^2c, c^2a are in HP

C) a^2b, b^2c, c^2a are in GP

(14) The first term of a GP is 7, the last term is 448 and the sum of all terms is 889, then the common ratio is (3)

A) 5 B) 4 C) 3 D) 2

(15) The 4th term of a HP is $\frac{3}{5}$ and 8th term is $\frac{1}{3}$ then its 6th term is

A) $\frac{1}{6}$ B) $\frac{3}{7}$ C) $\frac{1}{7}$ D) $\frac{3}{5}$

(16) The sum of first and third term of an arithmetic progression is 12 and the product of first and second term is 24, then first term is

A) 1 B) 8 C) 4 D) 6

(17) If a, b, c are in AP and a^2, b^2, c^2 are in HP then

A) $a \neq b \neq c$ B) $a^2 = b^2 = c^2$

C) a, b, c are in GP D) $-\frac{a}{2}, b, c$ are in GP

(18) If 4 times the 4th term of an AP is equal to 9 times the 9th term of the AP. What is 13 times the 13th term of this AP

A) 7 times the 13th term B) 0

C) 13 times the 7th term D) 4 times the 4th term + 9 times the 9th term

(19) Second term of an AP is 8 and 8th term is 2 more than thrice the second term. Find the sum upto 8 terms of this AP

A) 124 B) 108 C) 96 D) 110

(20) The sum of 2n terms of AP (1, 5, 9, 13 - - -) is greater than sum of n terms of AP = (56, 58, 60 - - -) what is the smallest value n can take?

A) 9 B) 10 C) 12 D) 14

(21) If the sum of the first 2n terms of the AP series 2, 5, 8, - - - is equal to the sum of the first n terms of the AP series 57, 59, 61, - - -

a) 10 b) 12 c) 11 d) 13

(22) Consider an infinite Geometric series with first term a and common ratio r. If its sum is 4 and the second term is $\frac{3}{4}$

a) $a=\frac{4}{7}, r=\frac{3}{7}$ b) $a=2, r=\frac{3}{8}$ c) $a=\frac{3}{2}, r=\frac{1}{2}$ d) $a=3, r=\frac{1}{4}$

(23) If T_m = m^{th} term of an AP is $\frac{1}{m}$ and n^{th} term of an AP is $\frac{1}{n}$ then a_{mn} equals

a) $\frac{1}{mn}$ b) $\frac{1}{m}+\frac{1}{n}$ c) 1 d) 0

(24) If three unequal numbers x, y, z are in AP and are such that y-x, z-y, x are in GP then x : y : z equals to

a) 2 : 3 : 4 b) 1 : 2 : 4 c) 1 : 3 : 5 d) 1 : 2 : 3

(25) The sum of the three numbers in AP is 21 and the product of the first and third number of the sequence is 45. What are the three numbers

a) 5, 7 and 9 b) 9, 7 and 5 c) Both (1) & (2) d) None of these

(26) The sum of third and ninth term of an AP is 5. Find the sum of the first 11 terms of the progression

a) 44 b) 22 c) 19 d) None of these

(27) What is the sum of the following series $-64, -66, \ldots, -68, -100$

a) -1458 b) -1558 c) -1568 d) None of these

(28) The sum of the fourth and twelfth term of an AP is 20. What is the sum of the first 15 terms of AP

a) 300 b) 120 c) 150 d) 170

(29) The ratio of the sum of first 6 terms of a GP to the sum of the first 3 terms of the GP is 9. What is the common ratio of the GP?

a) 3 b) $\frac{1}{3}$ c) 2 d) 9

(30) An AP consists of 50 terms of which 3rd term is 12 and the last term is 106. Find the 29th term

a) 46 b) 50 c) 64 d) None