Chapter 6 Sequence and Series

1

(1998-2 Marks)

(1990-2 Marks)

(1992 - 2 Marks)

(1994)

c) $n + 2^{-n} - 1$ d) $2^n + 1$

c) an irrational number

d) a prime number

c) a, b, c are in G.P.

d) a, b, c are in H.P.

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1) Sum of the first *n* terms of the series $\frac{1}{2} + \frac{3}{4} + \frac{7}{8} + \frac{15}{16} + \dots$ is equal to

3) If $\log_e(a+c)$, $\log_e(a-c)$, $\log_e(a-2b+c)$ are in A.P.,then

a) $2^n - n - 1$ b) $1 - 2^{-n}$

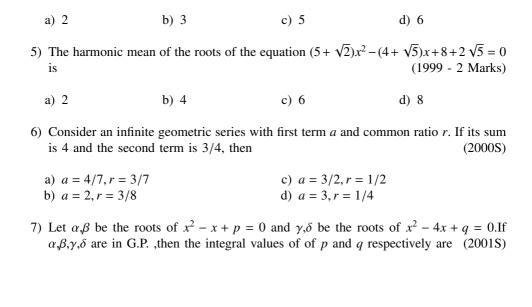
2) The number log₂7 is

a) a, b, c are in A.P.

b) a^2, b^2, c^2 are in A.P.

 $h_{10} = 3$, then a_4h_7 is

a) an integerb) a rational number



4) Let $a_1, a_2, \dots a_{10}$ be in A.P. and $h_1, h_2, \dots h_{10}$ be in H.P. If $a_1 = h_1 = 2$ and $a_{10} = 1$

(2001S)

(2001S)

d) 6, -32

d) 13

	then the value of a is				2S)
	a) $\frac{1}{2\sqrt{2}}$	b) $\frac{1}{2\sqrt{3}}$	c) $\frac{1}{2} - \frac{1}{\sqrt{3}}$	d) $\frac{1}{2} - \frac{1}{\sqrt{2}}$	
11)	1) An infinite G.P. has first term $'x'$ and sum $'5'$ then x belongs to (2004S)				
	a) $x < -10$	b) $-10 < x < 0$	c) $0 < x < 10$	d) $x > 10$	
12)	2) In the quadratic equation $ax^2 + bx + c = 0$, $\triangle = b^2 - 4ac$ and $\alpha + \beta, \alpha^2 + \beta^2, \alpha^3 + \beta^3$ are in G.P. where α, β are root of $ax^2 + bx + c = 0$, then (2005S)				
	a) △ ≠ 0	b) $b \triangle = 0$	c) $c\triangle = 0$	d) $\triangle = 0$	
13)	3) In the sum of first n terms of an A.P. is cn^2 , then the sum of squares of these n terms is (2009)				
	a) $\frac{n(4n^2-1)c^2}{6}$	b) $\frac{n(4n^2+1)c^2}{3}$	c) $\frac{n(4n^2-1)c^2}{3}$	d) $\frac{n(4n^2+1)c^2}{6}$	
14)	Let $a_1, a_2, a_3,$ be in harmonic progression with $a_1 = 5$ and $a_{20} = 25$. The least positive integer n for which $a_n < 0$ is (2012)				
	a) 22	b) 23	c) 24	d) 25	
15) Let $b_i > 1$ for $i = 1, 2,, 101$. Suppose $\log_e b_1, \log_e b_2,, \log_e b_{101}$ are in Arithmetic Progression (A.P.) with the common difference $\log_e 2$. Suppose $a_1, a_2,, a_{101}$ are in A.P. such that $a_1 = b_1$ and $a_{51} = b_{51}$. If $t = b_1 + b_2 + \cdots + b_{51}$ and $s = a_1 + a_2 + \cdots + a_{53}$, then (JEE Adv. 2016)					
	a) $s > t$ and $a_{101} > l$ b) $s > t$ and $a_{101} < l$		c) $s < t$ and $a_{101} > t$ d) $s < t$ and $a_{101} < t$		

c) -6,3

9) If the sum of the first 2n terms of the A.P. $2, 5, 8, \ldots$, is equal to the sum of the first

10) Suppose a, b, c are in A.P. and a^2, b^2, c^2 are in G.P. if a < b < c and a + b + c = 3/2,

c) in G.P.

d) in H.P.

c) 11

8) Let the positive numbers a, b, c, d be in A.P. Then abc, abd, acd, bcd are

b) -2,3

n terms of the A.P. 57, 59, 61, ..., then n equals

b) 12

a) -2, -32

b) in A.P.

a) 10

a) NOT in A.P./G.P./H.P