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ONLINE TEST-08, (30-04-2020)  **MATHEMATICS TOPIC: SEQUENCE SERIES : SOLUTION**

1. (b) Given that,  …..(i)

and  ….. (ii)

From (i) and (ii), we get 

Putting value of  in equation (i), then 

Now,  term is given by A.P.

 

**Note :** Students should remember this question as a formula.

1. (a) Given series 

First factors are 3, 6, 9, 12 whose term is  and second factors are 8, 11, 14, 17



Hence term of given series .

1. (b) We have 



= 

.

1. (a) We have 

⇒ 

⇒ 

⇒ 

Put  then ⇒ .

1. d) If  are in A.P. 

So, 

.

**Trick :** Put , then the required value is .

1. (d) We know that natural numbers are  are in A.P.

Now sum .

1. (b) We get series 3, 6, 9, 12, ........ 99.

Here , therefore





1. (a) Given that 

Putting ,

.

So, ,



Therefore series is 

Now,  term .

**Aliter :** As we know 



.

1. (a) We have 

Let  be the number of terms in the A.P. on L.H.S. Then 

 

 .

1. (b) ****term of an A.P. 





.

1. (c) ****

 

If . Then . Hence .

1. (a) The sum of  arithmetic mean between  and  .

**Aliter :** As we know , where .

1. (b) Let three numbers are .

We get 

and 

 



Putting 



Thus numbers are 3, 5, 7.

**Trick :** Since  and .

1. (c) Let the first term of A.P. is *a* and common difference is *d*.

11th term of A.P. = 

21st term of A.P. = *a*+ 20*d*

⇒

⇒

Hence 25th term is 0.

1. (c) Let first term of G.P.  and common ratio 

We know that term of G.P. = 

Now and 

Relation is true because  and 

**Aliter :** As we know, if  in A.P., then  terms of a G.P. are always in G.P., therefore,  will be in G.P. .

1. (c) Given that 

Then product of first 5 terms

.

1. (a) Accordingly,  and 

 and .

 term .

**Trick :**  term is equidistant from and  so it will be .

1. (d) Infinite series is 

Sum  …..(i)

and 

 [By equation (i)]

.

1. (b) Let three terms of G.P. are . Then

 …..(i)

 …..(ii)

Dividing (ii) by (i),



. Hence .

1. (b) As given 

 

 

  

 .

1. (c) ****where

 and

Now .

Then third geometric mean .

**Aliter :** By formula, .

1. (b) ****

.

1. (d) ****

then 

Adding, 

.

**Aliter :** 

.

1. (a) ****



.

1. (c) Given  for H.P. Therefore for the corresponding A.P.  term  term 

Let  and *d* be the first term and common difference of this A.P., then

 …..(i)

 …..(ii)

Solving these, we get 

Now, term of corresponding A.P.



Therefore  term of corresponding H.P. is .

**Note :** Students should remember this question as a fact.

1. (b) We have 





or 

Hence .

1. (b) Let two numbers  and .

We have G.M. .

1. (b) 

.

1. (c) **** 





.

1. (c) Sum of cubes of  natural number

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