Work Sheet – 02 (Mathematics) for Class – Nine (20.09.2020), Chapter- Thirteen, Exercise- 13.2 Finite Series

Creative Multiplication Choice Questions

On the basis of the following series answer to the questions No. (1 – 2):

$\log 2 + \log 4 + \log 8 + \ldots\ldots\ldots\ldots$

1. **What is the common difference of the series?**
   a) 2 b) 4
   c) $\log 2$ d) $2\log 2$
2. **Which one is the 7th term of the series?**
   a) $\log 32$ b) $\log 64$
   c) $\log 128$ d) $\log 256$
3. **What is the sum of first nth terms of series: $1 + 3 + 5 + 7 + \ldots\ldots\ldots\ldots$?**
   a) $\frac{n^2}{2}$ b) $\frac{n(n+1)}{2}$
   c) $\left\{\frac{n(n+1)}{2}\right\}^2$ d) n^2
4. **If first term of a geometric series is $\frac{\sqrt{3}}{2}$ and common ratio is $\frac{\sqrt{2}}{\sqrt{3}}$ then what is the 5th term of the series?**
   a) $\frac{2\sqrt{3}}{9}$ b) $\frac{3\sqrt{2}}{9}$
   c) $\frac{2\sqrt{2}}{9}$ d) $\frac{2\sqrt{2}}{3\sqrt{3}}$
5. **Which one of the following is the sum of the cube of first n natural numbers?**
   a) $\frac{n}{2}\{2a + (n-1)d\}$
   b) $\frac{n(n+1)}{2}$
   c) $\left\{\frac{n(n+1)}{2}\right\}^2$
   d) $\frac{n(n+1)(2n+1)}{6}$
6. **What is the general term of 128 + 64 + 32 +.....?**
   a) ar^{n-1} b) $\frac{1}{2^n}$
   c) $\frac{1}{2^{n-1}}$ d) $\frac{1}{2^{n-8}}$
7. **What are the 4th terms of the series: $\frac{1}{\sqrt{3}}, -1, \sqrt{3} \ldots\ldots\ldots\ldots$?**
   a) $-\frac{1}{\sqrt{3}}$ b) -3
   c) $\sqrt{3}$ d) $-\frac{1}{3}$
8. **What is the sum of first (2n + 1) terms of the series: 2 – 2 + 2 – 2 +……?**
   a) 0 b) 2
   c) -2 d) 1
9. **If n = 5 the what will be the summation of nth cubic term of natural number?**
   a) 100 b) 225
   c) 450 d) 625
10. **Which one is the summation of first nth odd number?**
    a) $2n$ b) n^2
    c) n^3 d) $\frac{n^2}{2}$
11. **Which one of the following is the 23rd term of the series of x – x + x – x +.....?**
    a) $-x$ b) X
    c) $20x$ d) $-20x$
12. **What is the sum of (2n + 2) number of terms of the series: 4 – 4 + 4 – 4 + 4 – 4 +.....?**
    a) 4 b) -4
    c) 0 d) 8
13. **Sum of first 10 terms of the series: 4 + 6 + 8 +.....is.**
    a) 300 b) 260
    c) 150 d) 130
14. **What is S_n of the series: $1^3 + 2^3 + 3^3 + \ldots\ldots\ldots\ldots$?**
    a) $\frac{r^n - 1}{r - 1}$ b) $\frac{1 - r^n}{1 - r}$
    c) $\frac{n(n+1)}{2}$ d) $\frac{n^2(n+1)^2}{4}$
15. **If first term of a geometries series is $\frac{\sqrt{3}}{2}$ and common ration is $\frac{\sqrt{2}}{\sqrt{3}}$ then what is the 5th term of the series?**
    a) $\frac{2\sqrt{3}}{9}$ b) $\frac{3\sqrt{2}}{9}$
    c) $\frac{2\sqrt{2}}{9}$ d) $\frac{2\sqrt{2}}{3\sqrt{3}}$
16. **Which one of the following is the sum of the cube of first n natural numbers?**
    a) $\frac{n}{2}\{2a + (n-1)d\}$
    b) $\frac{n(n+1)}{2}$

c) $\left\{\frac{n(n+1)}{2}\right\}^2$

d) $\frac{n(n+1)(2n+1)}{6}$

17. The series: $3 + 1 + \frac{1}{3} + \frac{1}{9} +$……

i. Is a geometric series.

ii. Common ratio of the series is $\frac{1}{3}$.

iii. 6^{th} term of the series $\frac{1}{8}$.

Which one of the following is correct?

a) i and ii b) ii and iii

c) i and iii d) i, ii and iii

18. Observe the following:

i. $1 + 2 + 3 +$.....$+ n = \frac{n(n+1)}{2}$

ii. $1^2 + 2^2 +$……$+n^2 = \frac{n(n+1)(2n+1)}{6}$

iii. $1^3 + 2^3 + 3^3 +$……..$+ n^3 = \frac{n(n+1)^2}{2}$

Which one of the following is correct?

a) i and ii b) i and iii

c) ii and iii d) i, ii and iii

Answer to the questions No. (19 – 20) on the basis of series: $\log 2 + \log 4 + \log 8 +$……

19. Which one is the common difference of the series?

a) 2 b) 4

c) $\log 2$ d) $2 \log 2$

20. Which one is 7^{th} term of the series?

a) $\log 32$ b) $\log 64$

c) $\log 128$ d) $\log 25$

According to the series: $\log 2 + \log 4 + \log 6 +$……. Answer the questions No. (21 – 22):

21. Which one is the 5^{th} term of the series?

a) $\log 256$ b) $\log 1024$

c) $\log 16384$ d) $\log 65536$

22. Which one is the sum of the first 5^{th} term of the series?

a) $15 \log 2$ b) $14 \log 2$

c) $31 \log 2$ d) $63 \log 2$

$a - a + a - a -$……. is a series.

Answer the questions No. (23 – 24):

23. Which one is the 21^{st} term?

a) $-a$ b) A

c) $21a$ d) $-21a$

24. Sum of first 21^{st} term?

a) 0 b) A

c) $-a$ d) $21a$

25. Which of the following is the sum of the square of first n number of natural numbers?

a) $\frac{2}{3} n (n+1)(2n+1)$

b) $\frac{1}{6} n (n+1)(2n+1)$

c) n^2

d) $\frac{2}{3}(n-1)n(2n-1)$

26. $1^2 + 2^2 + 3^2 +$……$+10^2$ = What?

a) 55 b) 110

c) 385 d) 3025

27. If $\frac{1^2 + 2^2 + 3^2 + \cdots + n^2}{1 + 2 + 3 + \cdots + n} = \frac{390}{30}$ then what is the value of n?

a) 17 b) 18

c) 19 d) 21

28. If $1^2 + x + y + 4^2$ is the series of the square natural numbers then:

i. $x = 4$

ii. $y = 9$

iii. Final term $= 68$

Which one of the following is correct?

a) i and ii b) i and iii

c) ii and iii d) i, ii and iii

29. If $\frac{1^2 + 2^2 + 3^2 + \cdots + n^2}{1 + 2 + 3 + \cdots + n} = 15$ then -

i. $\frac{n(n+1)(2n+1)}{3n(n+1)} = 15$

ii. $2n + 1 = 45$

iii. $n = 22$

Which one of the following is correct?

a) i and ii b) i and iii

c) ii and iii d) i, ii and iii

Answer to the questions No. (30 - 31) using the following information:

The final term of the series: $1^2 + 2^2 + 3^2 + n^2$ is 36.

30. What is the value of n?

a) 5 b) 6

c) 36 d) 72

31. What is the sum of the series?

a) 18 b) 36

c) 91 d) 324