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MCQs – Ch # 6: F.Sc Part 1

TEXT BOOK OF ALGEBRA AND TRIGONOMETRY CLASS XI

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Choose the correct answer.

1. A function whose domain is a subset of natural numbers is called
   (a) Identity function (b) sequence (c) onto function (d) series
2. If $a_n = \frac{1}{2^n}$, then first four terms are
   (a) $\frac{1}{2},\frac{1}{4},\frac{1}{8},\frac{1}{16}$ (b) 2,4,8,16 (c) 1,2,4,8 (d) $1,\frac{1}{2},\frac{1}{4},\frac{1}{8}$
3. The general term of the sequence is denoted by
   (a) a_1 (b) a_n (c) n (d) S_n
4. The difference of the two consecutive terms of A.P. is called
   (a) general term (b) common ratio (c) common difference (d) none of these
5. -2,1,4,7,… is
   (a)harmonic sequence (b)arithmetic sequence (c)geometric sequence (d)arithmetic series
6. The n numbers $A_1, A_2, A_3, ...A_n$ are called arithmetic means b/w a and b if $a, A_1, A_2, ..., A_n, b$ is
   (a) arithmetic series (b) arithmetic sequence (c) geometric sequence (d) harmonic sequence
7. Arithmetic mean between $3\sqrt{5}$ and $5\sqrt{5}$ is
   (a) $8\sqrt{5}$ (b) $2\sqrt{5}$ (c) $\sqrt{5}$ (d) $4\sqrt{5}$
8. Write the first four terms of the arithmetic sequence if $a_1 = 5$ and other three consecutive terms are 23,26,29
   (a) 23,26,29,32 (b) 5,8,11,14 (c) 8,11,14,17 (d) none of these
9. The nth term of a G.P. is
   (a) $a_1 r^n$ (b) $a_1 r^{n+1}$ (c) $a_1 r^{n-1}$ (d) $a_1 r^{-n}$
10. 3,6,12,… is
    (a) A.P. (b) G.P. (c) H.P. (d) none of these
11. Find the geometric mean between $-2i$ and $8i$
    (a) $\pm 4i$ (b) ± 4 (c) ± 8 (d) none of these
12. Sum of the n terms of the geometric series if | r | < 1 is
    (a) $\frac{a_1(r^n-1)}{r-1}$ (b) $\frac{a_1(1-r^n)}{1-r}$ (c) $\frac{a_1(r^n+1)}{r+1}$ (d) $\frac{a_1(r^n-1)}{r+1}$
13. The common ratio of the geometric sequence cannot be
    (a) 0 (b) 1 (c) 2 (d) 3
14. If a_1, r are the first term and the common ratio respectively then the sum of infinite geometric series is
    (a) $\frac{a_1}{r+1}$ $|r|<1$ (b) $\frac{a_1}{1-r}$ $|r|>1$ (c) $\frac{a_1}{1-r}$ $|r|<1$ (d) $\frac{a_1}{1+r}$ $|r|>1$
15. The sum of the infinite geometric series exist if
    (a) $|r|<1$ (b) $|r|>1$ (c) $r=1$ (d) $r=-1$
16. A sequence of the numbers whose reciprocals form an arithmetic sequence is called
    (a) geometric series (b) arithmetic sequence (c) harmonic sequence (d) harmonic series
17. No term of the harmonic sequence
    (a) 0 (b) 1 (c) 2 (d) 3
18. The harmonic mean between a and b is
    (a) $\frac{a+b}{2}$ (b) $\pm\sqrt{ab}$ (c) $\frac{a-b}{2}$ (d) $\frac{2ab}{a+b}$

19. $\sum_{k=1}^{n} k^2 =$

(a) $\frac{n(n+1)}{2}$ (b) $\frac{n^2(n+1)^2}{4}$ (c) $\frac{n(n+1)(2n+1)}{6}$ (d) none of these

20. $\sum_{k=1}^{n} k^3 =$

(a) $\frac{n(n+1)}{2}$ (b) $\frac{n^2(n+1)^2}{4}$ (c) $\frac{n(n+1)(2n+1)}{6}$ (d) none of these

21. The 6^{th} term of the arithmetic sequence whose 1^{st} term is 3 and common difference is zero is

(a) 18 (b) 6 (c) 3 (d) 0

22. The fifth term of the sequence $a_n = 2n+3$ is

(a) 13 (b) -13 (c) 8 (d) 3

23. The third term of the sequence $a_n = (-1)^{n-1}(n-7)$ is

(a) 8 (b) 4 (c) -4 (d) -8

24. $1+2+3+4+...+n =$

(a) $\frac{n(n+1)}{4}$ (b) $\frac{n(n+1)}{6}$ (c) $\frac{n(n+1)}{2}$ (d) $\frac{n(n-1)}{2}$

25. A.M. between $1-x+x^2$ and $1+x+x^2$ is

(a) $1+x^2$ (b) $1-x^2$ (c) $1+x$ (d) $1-x$

26. If $S_n \to a$ limit as $n \to \infty$ then the series is said to be

(a) divergent (b) convergent (c) both of above (d) none of these

27. $\frac{1}{2}, \frac{1}{7}, \frac{1}{12}$ is called

(a) A.P. (b) G.P. (c) H.P. (d) none of these

28. If $a_{n-2} = 3n-11,$ find the nth term of the sequence

(a) 11 (b) $3n-5$ (c) $3n-6$ (d) none of these

29. If 5 is the harmonic mean between 2 and b then b=

(a) 3 (b) 8 (c) 10 (d) -10

30. The harmonic mean between 3 and 7 is

(a) 5 (b) $\pm\sqrt{21}$ (c) $\frac{21}{5}$ (d) none of these

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