MATHS
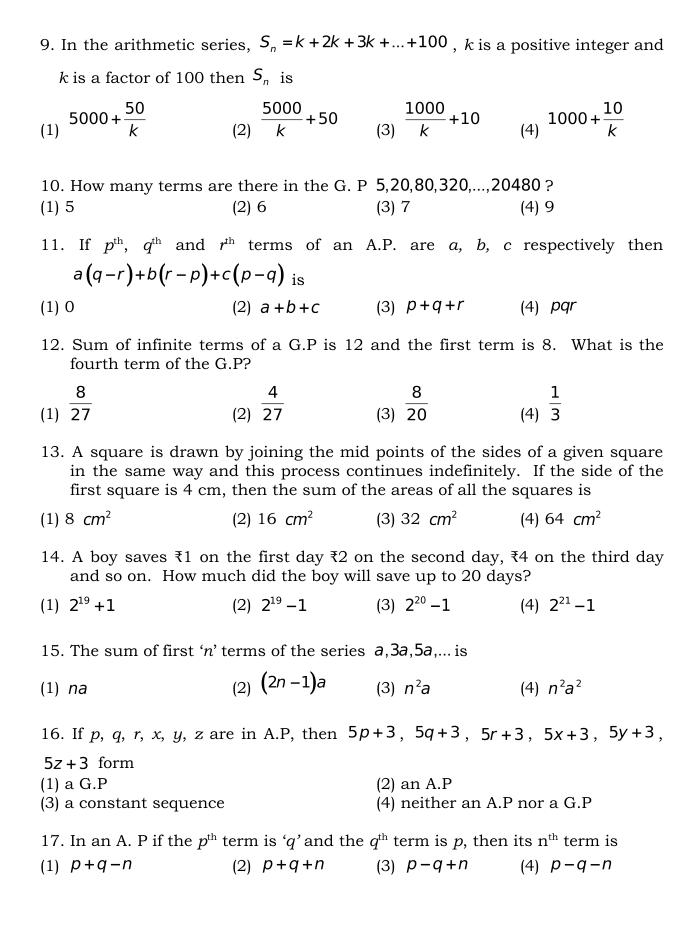**CLASS X**
2. Numbers and Sequences

Multiple choice Question

1. What is the HCF of the least prime number and the least composite number? (1) 1
   (2) 2 (3) 3
   (4) 4

2. If 'a' and 'b' are two positive integers where $a > b$ and 'b' is a factor of 'a' then HCF of (a,b) is

(1) b (2) a (3) ab (4) $\dfrac{a}{b}$

3. If m and n are co-prime numbers, then m^2 and n^2 are
(1) co-prime   (2) not co-prime
(3) even   (4) odd

4. If 3 is the least prime factor of number a and 7 is the least prime factor of b then the least prime factor of $a+b$ is
(1) $a+b$ (2) 2   (3) 5   (4) 10

5. The remainder when the difference between 60002 and 601 is divided by 6 is
(1) 2   (2) 1   (3) 0   (4) 3

6. $44 \equiv 8 \pmod{12}, 113 \equiv 5 \pmod{12}$, thus $44 \times 113 \equiv \underline{\quad} \pmod{12}$
(1) 4   (2) 3   (3) 2   (4) 1

7. Given $a_1 = -1$ and $a_n = \dfrac{a_{n-1}}{n+2}$ then a_4 is

(1) $-\dfrac{1}{20}$ (2) $-\dfrac{1}{4}$ (3) $-\dfrac{1}{840}$ (4) $-\dfrac{1}{120}$

8. The first term of an A.P. whose 8th and 12th terms are 39 and 59 respectively is (L)
(1) 5   (2) 6   (3) 4   (4) 3

9. In the arithmetic series, $S_n = k + 2k + 3k + \ldots + 100$, k is a positive integer and k is a factor of 100 then S_n is

(1) $5000 + \dfrac{50}{k}$

(2) $\dfrac{5000}{k} + 50$

(3) $\dfrac{1000}{k} + 10$

(4) $1000 + \dfrac{10}{k}$

10. How many terms are there in the G. P $5, 20, 80, 320, \ldots, 20480$?
(1) 5   (2) 6   (3) 7   (4) 9

11. If p^{th}, q^{th} and r^{th} terms of an A.P. are a, b, c respectively then $a(q-r) + b(r-p) + c(p-q)$ is

(1) 0   (2) $a + b + c$ (3) $p + q + r$ (4) pqr

12. Sum of infinite terms of a G.P is 12 and the first term is 8. What is the fourth term of the G.P?

(1) $\dfrac{8}{27}$ (2) $\dfrac{4}{27}$ (3) $\dfrac{8}{20}$ (4) $\dfrac{1}{3}$

13. A square is drawn by joining the mid points of the sides of a given square in the same way and this process continues indefinitely. If the side of the first square is 4 cm, then the sum of the areas of all the squares is

(1) 8 cm^2 (2) 16 cm^2 (3) 32 cm^2 (4) 64 cm^2

14. A boy saves ₹1 on the first day ₹2 on the second day, ₹4 on the third day and so on. How much did the boy will save up to 20 days?

(1) $2^{19} + 1$ (2) $2^{19} - 1$ (3) $2^{20} - 1$ (4) $2^{21} - 1$

15. The sum of first 'n' terms of the series $a, 3a, 5a, \ldots$ is

(1) na (2) $(2n-1)a$ (3) $n^2 a$ (4) $n^2 a^2$

16. If p, q, r, x, y, z are in A.P, then $5p+3$, $5q+3$, $5r+3$, $5x+3$, $5y+3$, $5z+3$ form
(1) a G.P   (2) an A.P
(3) a constant sequence   (4) neither an A.P nor a G.P

17. In an A. P if the pth term is 'q' and the qth term is p, then its nth term is
(1) $p + q - n$ (2) $p + q + n$ (3) $p - q + n$ (4) $p - q - n$

18. Sum of first 'n' terms of the series $\sqrt{2}+\sqrt{8}+\sqrt{18}+...$ is (H)

(1) $\dfrac{n(n+1)}{2}$

(2) $\sqrt{n}$

(3) $\dfrac{n(n+1)}{\sqrt{2}}$

(4) 1