❖ *Four possible answers to each statement are given below. Tick (✓) mark the correct/best one.*

1. Around "5000 B.C." the Egyptians had a number system based on
   (a) 5
   (b) 50
   (c) 10
   (d) 100

2. A well defined collection of distinct objects is called
   (a) Relation
   (b) Set
   (c) Function
   (d) None of these

3. If there are m rows and n columns in a matrix then its order is
   (a) $m \times m$
   (b) $m \times n$
   (c) $n \times m$
   (d) $n \times n$

4. There is a nice shortcut method for long division of a polynomial $f(x)$ by $(x - a)$ is called
   (a) Factorization
   (b) Rationalization
   (c) Synthetic division
   (d) None of these

5. The quotient of two polynomials $\dfrac{P(x)}{Q(x)}$ where $Q(x) \neq 0$, with no common factors is called
   (a) Improper Rational Fraction
   (b) Proper Rational Fraction
   (c) Rational Fraction
   (d) None of these

6. An infinite sequence has
   (a) A last term
   (b) No last term
   (c) Both (a) and (b)
   (d) None of these

7. First four terms of the sequence $a_n = (-1)^n \cdot n^2$
   (a) 1, 2, 3, 4
   (b) −1, 4, −9, 16
   (c) 1, −4, −9, −16
   (d) 1, −2, 3, −4

8. $^nC_r + {}^nC_{r-1} =$
   (a) ^nC_r
   (b) $^{n+1}C_r$
   (c) $^{n+1}C_{r+1}$
   (d) $^nC_{r+1}$

9. $^{n-1}C_r + {}^{n-1}C_{r+1} =$
   (a) $^{n-1}C_r$
   (b) $^{n-1}C_{r+1}$
   (c) $^nC_{r-1}$
   (d) $^nC_{r+1}$

10. The expansion of $(1 + x)^{-n}$ is valid if
    (a) $|x| > 1$
    (b) $|x| \neq 1$
    (c) $|x| < 1$
    (d) None of these

11. The expansion $(1 + 2x)^{-2}$ is valid if
    (a) $|x| < \dfrac{1}{2}$
    (b) $|x| < 1$
    (c) $|x| < 2$
    (d) None of these

12. Trigonometry is an important branch of
    (a) Algebra
    (b) Mathematics
    (c) Physics
    (d) None of these

13. The word trigonometry has been derived from three
    (a) English alphabets
    (b) German words
    (c) Greek words
    (d) None of these

14. The Fundamental Law of Trigonometry is
    (a) $\sin(\alpha + \beta) = \sin\alpha\cos\beta + \cos\alpha\sin\beta$
    (b) $\cos(\alpha - \beta) = \cos\alpha\cos\beta + \sin\alpha\sin\beta$
    (c) $\cos(\alpha + \beta) = \cos\alpha\cos\beta - \sin\alpha\sin\beta$
    (d) None of these

15. The Fundamental Law is true for α, β if
    (a) For all values of α & β
    (b) $\alpha > \beta > 0$ only
    (c) $\alpha > 0$ & $\beta < 0$ only
    (d) None of these

16. Domain of tangent function =
    (a) $\Re$
    (b) $\Re - \{x \,/\, x = (2n + 1)\pi, n \in z\}$
    (c) $\Re - \{x \,/\, x = (2n + 1)\dfrac{\pi}{2}, n \in z\}$
    (d) None of these

17. Domain of a cotangent function =
    (a) $\Re - \{x \,/\, x = n\dfrac{\pi}{2}, n \in z\}$
    (b) $\Re - \{x \,/\, x = n\pi, n \in z\}$
    (c) $\Re$
    (d) None of these

18. Sum of all the angles of a triangle is
    (a) 90°
    (b) 270°
    (c) 190°
    (d) 180°

19. Angle above the surface line is called angle of
    (a) Right angle
    (b) Oblique angle
    (c) Elevation
    (d) Depression

20. If $y = \cos^{-1} x$ is inverse cosine function then its domain is
    (a) $[-1, 1]$
    (b) Set of real numbers
    (c) Set of prime numbers
    (d) None of these

****

Available at http://www.mathcity.org