APTITUDE

1. Factorization of $(x + y)2 + 9(x + y) + 8$ is
(A) $(x+y + l)(x + y)$
(B) $(x + y+l)(x + y + 8)$
(C) $(x + y + l)(x + y + 6)$
(D) $(x + y + 8)(x + y + 2)$

2. What is the difference between the sum of first 'n odd natural numbers and that of first 'n' natural numbers?
(A) $\frac{n}{2} + 1$
(B) $\frac{n(n-1)}{2}$
(C) $\frac{n(n+1)}{2}$
(D) $\frac{n(n+1)(2n+1)}{6}$

3. What percent of an hour is 36 seconds?
(A) 6%
(B) 1%
(C) 10%
(D) 36%

4. $\left(\frac{x^m}{x^n}\right) m + n \left(\frac{x^n}{x^l}\right) n+l \left(\frac{x^l}{x^m}\right) l+m = \cdots$
(A) 1
(B) -1
(C) x^{m+n+l}
(D) $\frac{1}{x^{m+n+l}}$

5. If the LCM of x and y is z, what is the H.C.F of x and y?
(A) $\frac{xy}{z}$
(B) $\frac{xz}{xy}$
(C) $\frac{yz}{x}$
(D) xy

6. The value of $\frac{x^2-2x}{x^2+2x}$ X $\frac{3x+6}{x-2}$
(A) $3x$
(B) 3
(C) $3x + 2$
(D) $x - 2$

7. Which of the following is arranged in correct ascending order?
(A) **25% of 8, 40% of 6, 30% of 9, 20% of 15**
(B) 20% of 15, 25% of 8, 30% of 9, 40% of 6
(C) 30% of 9, 40% of 6, 25% of 8, 20% of 15
(D) 20% of 15, 30% of 9, 40% of 6, 25% of 8

8. Which of the following is larger in area?
(A) A triangle with base 10 cm and height 8 cm
(B) A triangle with sides 12 cm, 5 cm and 13 cm
(C) An equilateral triangle whose sides are 10 cm each
(D) A right angled triangle whose sides containing the right angle are 3 cm and 4 cm

9. If A = +, B = , C = x and D = - then what is the value of $\frac{1}{5}C2B\frac{1}{5}D\frac{1}{10} = ?$
(A) 2.1
(B) 1.2
(C) 2.5
(D) 1.6

10. The value of $\dfrac{x^3-1}{x+3} \div \dfrac{x^2+x+1}{3x+9}$

(A) $3x - 1$　　　(B) $3(x + 1)$　　　**(C) $3(x - 1)$**　　　(D) $3x + 2$

11. The area of a semi-circle of radius 7 cm. is

(A) 7 cm2　　　　　　　　　　(B) 777 cm3

(C) 77 cm2　　　　　　　　(D) 7777 cm2

12. A boy is now twice as old as his sister, four years ago, he was thrice as old as her what are their ages now?

(A) 18, 9　　　(B) 14, 7　　　**(C) 16, 8**　　　(D) 12, 6

13. $x^{3/2} : 9 = 16 : \sqrt{x}$. What is the value of x?

(A) ±16　　　(B) ±3　　　(C) ±4　　　**(D) ±12**

14. The arithmetic mean of a group of 75 observations was calculated as 27. It was later found that one observation was wrongly read as 43 instead of the correct value 53. Obtain the correct arithmetic mean of the data.

(A) 26.13　　　**(B) 27.13**　　　(C) 28.13　　　(D) 25.13

15. A sum of money triples itself at 8% per annum over certain time. The number of years is equal to

(A) 24　　　**(B) 25**　　　(C) 20　　　(D) 12

16. The cylinder whose base is not in circular form is called

(A) Circular cylinder　　　　　(B) Right circular cylinder

(C) Oblique cylinder　　　　(D) Irregular cylinder

17. 10 sq. m. is equal to

(A) 100 sq. cm.　　　　　　　(B) 1000 sq. cm.

(C) 10000 sq. cm.　　　　　　**(D) 100000 sq. cm.**

18. What is the 85th term of the sequence $x, x^{3/2}, x^2, x^{5/2}, \dots$?

(A) $x^{\frac{85}{2}}$　　　(B) $x^{\frac{45}{2}}$　　　**(C) x^{43}**　　　(D) x^{44}

19. The radius and the slant height of a cone are respectively 'r' and 'l'. What is the volume of the cone?

(A) $\frac{1}{3}\pi r^2 \sqrt{l^2 - r^2}$　　　　　　(B) $\frac{1}{3}\pi r^2 \sqrt{l^2 + r^2}$

(C) $\pi r l$　　　　　　　　　(D) $\pi r(l + r)$

20. Total surface area of hollow hemisphere is equal to

(A) $2\pi(R^2 + r^2)$ sq. units　　　(B) $2\pi(R^2 - r^2)$ sq. units

(C) $\pi(3R^2 + r^2)$ sq. units　　　(D) $\pi(3R^2 - r^2)$ sq. units

21. The probability that a leap year will have 53 Fridays or 53 Saturdays is

(A) 1/7   (B) 2/7   **(C) 3/7**   (D) 4/7

22. If 100 persons can finish a work in 7 days, how many persons can finish the same work 35 days?

(A) 20 persons   (B) 50 persons

(C) 30 persons   (D) 25 persons

23. What is the 21st term of the sequence 100, 95, 90, 85.....?

(A) 10   (B) 20   **(C) 0**   (D) 5

24. Simplify: $\dfrac{2x^4-162}{(x^2+9)(2x-6)}$

(A) x^2 +9   **(B) x +3**   (C) x + 6   (D) x − 6