SKP VANITHA MATRICULATION SCHOOL

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ENTRANCE EXAM QUESTION PAPER

Name of Student : _____

Standard : **XI** Marks : **25**

Subject : **Mathematics** Date :

I. Choose the correct Answer **(15×1=15)**

1. Let $A = \{1,2,3,4\}$ and $B = N$. Let $f: A \to B$ be defined by $f(x) = x^3$ then, the range of $'f'$ is

   (a) $f = \{2,4,6,8\}$ (b) $f = \{3,6,9,12\}$ (c) $f = \{1,4,9,16\}$ (d) $f = \{1,8,27,64\}$

2. If t_n is the nth term of an A.P. then the value of $t_{n+1} - t_{n-1}$ is

   (a) d (b) $2d$ (c) $3d$ (d) $4d$

3. The 8th term of the G.P. 9,3,1, ... is

   (a) $\frac{1}{3}$ (b) $\frac{1}{23}$ (c) $\frac{1}{124}$ (d) $\frac{1}{243}$

4. If $n(A) = m,\ n(B) = n,$ then the total number of relations that exist between A and B is

   (a) 2^{mn} (b) m^n (c) n^m (d) $2^{mn} - 1$

5. The excluded values of the expression $\frac{7P+2}{8p^2+13p+5}$ are

   (a) 5 and 1 (b) -5 and -1 (c) $\frac{-5}{8}$ and -1 (d) $\frac{5}{8}$ and 1

6. If A is a 3×2 matrix and B is a 2×4 matrix, then the number of rows does AB have.

   (a) 3 (b) 2 (c) 4 (d) None of these

7. A tangent is perpendicular to the radius at the

   (a) Centre (b) Point of Contact (c) Infinity (d) Chord

8. A player is sitting on the top of a tower of height 20 m observes the angle of depression of a ball lying on the ground as 60^o then the distance between the foot of the tower and the ball is

   (a) $\frac{1}{\sqrt{3}}m$ (b) $\frac{10}{\sqrt{3}}\ m$ (c) $\frac{20}{\sqrt{3}}$ (d) None of these

9. If the slope of the line AB is $\sqrt{3}$ then slope of the perpendicular bisector of AB is

   (a) $\frac{1}{\sqrt{3}}$ (b) $\frac{-1}{\sqrt{3}}$ (c) $\sqrt{3}$ (d) $-\sqrt{3}$

10. If the three points (8,-1), (a,3) and (1,-3) are collinear, then the value of 'a' is

    (a) 3 (b) 5 (c) 7 (d) 9

***** All the best *****

11. If the surface area of the sphere is 154 m^2 then its radius is

(a) $\frac{5}{2}$ (b) $\frac{2}{5}$ (c) $\frac{2}{7}$ (d) $\frac{7}{2}$

12. A card is drawn from a pack of 52 cards, then the probability of getting a heart card is

(a) $\frac{26}{52}$ (b) $\frac{13}{52}$ (c) $\frac{4}{52}$ (d) $\frac{2}{52}$

13. The value of $\cos 60^o \sin 30^o + \cos 30^o \sin 60^o$ is equal to

(a) 1 (b) $\frac{1}{\sqrt{3}}$ (c) $\frac{\sqrt{3}}{2}$ (d) ∞

14. The total surface are of the right circular cone is

(a) $\frac{1}{3}\pi r^2 h$ (b) $\pi r(l+r)$ (c) $\pi r^2 h$ (d) $4\pi r^2$

15. The mean of a data is 25.6 and its coefficient of variation is 18.75 then the S.D is equal to

(a) 18.75 (b) 180 (c) 48 (d) 4.8

II. Answer the following questions : **(5×2=10)**

16. Find the square root of the polynomial $64x^4 - 16x^3 + 17x^2 - 2x + 1$
17. If $f(x) = 3x - 2, g(x) = 2x + K$ and if $fog = gof$, then find the value of K
18. Find the sum of $15^2 + 16^2 + 17^2 + \cdots + 28^2$
19. Find the equation of a line passing through the point (3,-4) and having slope $\frac{-5}{7}$
20. Two coins are tossed together, what is the probability of getting same faces on the coins?

***** All the best *****