Plk brilliants

2 MARKS TEST

CLASS : 10 **MARKS : 50**
SUBJECT: MATHS **TIME : 1.30 HRS**
ANSWER ANY TWENTY FIVE QUESTIONS:

1. If BXA = {(-2,3), (-2,4), (0,3), (0,4), (3,3), (3,4)} then find A and B.
2. Let X = {1,2,3,4} and Y = {2,4,6,8,10} and R = {(1,2), (2,4), (3,6), (4,8)}. Show that R is a function and find its domain, co-domain and range?
3. Represent the function f(x) = $\sqrt{2x^2 - 5x + 3}$ as a composition of two functions.
4. If f(x) = x^2-1, g(x) = x-2 find a if gof(a) =1.
5. If 13824 = 2^a x 3^b then find 'a' and 'b'.
6. Compute x, such that $10^4 \equiv x \pmod{19}$.
7. In a G.P. 729, 243, 81,… find t_7.
8. If 1+2+3+…+n = 666 then find 'n'.
9. Find the excluded value of $\frac{7p+2}{8p^2+13p+5}$.
10. Find the square root of $\frac{121(a+b)^8(x+y)^8(b-c)^8}{81(b-c)^4(a-b)^{12}(b-c)^4}$.
11. Determine the quadratic equation whose sum and product of roots are 5/3 and 4.
12. Construct a 3x3 matrix whose elements are $a_{ij} = i^2j^2$.
13. If A = $\begin{pmatrix} 7 & 8 & 6 \\ 1 & 3 & 9 \\ -4 & 3 & -1 \end{pmatrix}, B = \begin{pmatrix} 4 & 11 & -3 \\ -1 & 2 & 4 \\ 7 & 5 & 0 \end{pmatrix}$ then find 2A+B.
14. If $\Delta ABC \text{ is similar to } \Delta DEF$ such that BC=3 cm, EF = 4 cm and area of ΔABC = 54cm^2. Find the area of ΔDEF.
15. AD is the bisector of angle A. If BD=4cm, DC=3cm and AB=6cm find AC.
16. If radii of two concentric circles are 4 cm and 5 cm then find the length of the chord of one circle which is a tangent to the other circle.
17. The line r passes through the points (-2,2) and (5,8) and the line s passes through the points (-8,7) and (-2,0). Is the line r perpendicular to s?
18. Calculate the slope and y intercept of the straight line 8x-7y+6 =0.
19. Find the equation of a straight line which is parallel to the line 3x-7y = 12 and passing through the point (6,4).
20. Show that the straight lines x-2y+3=0 and 6x+3y+8=0 are perpendicular.
21. Prove that $\sqrt{\frac{1+\cos\theta}{1-\cos\theta}} = cosec\,\theta + cot\theta$.
22. A kite is flying at a height of 75 m above the ground. The string attached to the kite is temporarily tied to a point on the ground. The inclination of the string with the ground is 60^o. find the length of the string, assuming that there is no slack in the string.
23. From the top of a rock $50\sqrt{3}$ m high, the angle of depression of a car on the ground is observed to be 30^o. Find the distance of the car from the rock.
24. If the total surface area of a cone of radius 7 cm is 704 cm^2, then find its slant height.
25. The volume of a solid right circular cone is 11088 cm^3. If its height is 24 cm then find the radius of the cone.
26. A sphere, a cylinder and a cone are of the same radius 'r' where as cone and cylinder are of same height. Find the ratio of their curved surface areas.
27. Find the range and coefficient range of 63,89,98,125,79,108,117,68.
28. Find the standard deviation of first 21 natural numbers.
29. What is the probability that a leap year selected at random will contains 53 Saturdays?
30. The probability that at least one of A and B occur is 0.6. If A and B occur simultaneously with probability 0.2, then find $P(\bar{A}) + P(\bar{B})$.

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