**Octahedral classes, kharadi**

**2nd floor, yashwant plaza, near bank of India,**

## Class 09 - Mathematics

## Math practice paper

**Maximum Marks: 90** **Time Allowed: 2 hours**

### Section A

1. Express 0.2555.... in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$. **2**
2. Classify the following number as rational or irrational.$\sqrt{225}$ **2**
3. Simplify: $\frac{7+3\sqrt{5}}{3+\sqrt{5}} + \frac{7-3\sqrt{5}}{3-\sqrt{5}}$. **2**
4. Express the number in decimal form: $\frac{7}{64}$ **2**
5. Simplify: $\sqrt[4]{81} - 8\sqrt[3]{216} + 15\sqrt[5]{32} + \sqrt{225}$. **2**
6. If $a = \frac{\sqrt{2}+1}{\sqrt{2}-1}$ and $b = \frac{\sqrt{2}-1}{\sqrt{2}+1}$, then find the value of $a^2 + b^2 - 4ab$. **4**
7. If $a = 3 + 2\sqrt{2}$, then find the value of: **4**
   i. $a^2 + \frac{1}{a^2}$
   ii. $a^3 + \frac{1}{a^3}$
8. If $x = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$, and $y = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$, then find the value of $x^2 + y^2$. **4**
9. If $\sqrt{2} = 1.414, \sqrt{3} = 1.732$ then find the value of $\frac{4}{3\sqrt{3}-2\sqrt{2}} + \frac{3}{3\sqrt{3}+2\sqrt{2}}$. **4**
10. Simplify: $\frac{7\sqrt{3}}{\sqrt{10}+\sqrt{3}} - \frac{2\sqrt{5}}{\sqrt{6}+\sqrt{5}} - \frac{3\sqrt{2}}{\sqrt{15}+3\sqrt{2}}$. **4**
11. Factorise :$x^3 - 2x^2 - x + 2$ **2**
12. Factorise: $125x^3 - 343y^3$. **2**
13. By Remainder Theorem find the remainder, when p(x) is divided by g(x), where $p(x) = x^3 - 2x^2 - 4x - 1$, $g(x) = x + 1$ **2**
14. Factorise: $125x^3 + 27y^3 + 8z^3 - 90xyz$. **2**
15. What must be added to $2x^2 - 5x + 6$ to get $x^3 - 3x^2 + 3x - 5$? **2**
16. Factorize: $x^3 - 2x^2 - x + 2$ **4**
17. Factorize: $x^3 - 3x^2 - 9x - 5$ **4**
18. If $x + \frac{1}{x} = 3$, find the value of $x^4 + \frac{1}{x^4}$. **4**
19. If $x^2 + \frac{1}{x^2} = 34$, find $x^3 + \frac{1}{x^3} - 9$. **4**
20. Without actual division, prove that $2x^4 - 5x^3 + 2x^2 - x + 2$ is divisible by $x^2 + 3x$ **4**

+ 2.

21. Find whether $(\sqrt{2}, 4\sqrt{2})$ is the solution of the equation x – 2y = 4 or not? **2**
22. Solve the equation for x: 5(4x + 3) = 3(x - 2) **2**
23. Solve the following equation for x: (5x + 1)(x + 3) - 8 = 5(x + 1)(x + 2) **2**
24. Find whether the given equation have x = 2, y = 1 as a solution: **2**
    5x + 3y = 14
25. Give the equations of two lines passing through (4, -2). How many more such lines are there, and why? **2**
26. Draw the graph of linear equation x = 4 and y = 5. Find the area formed by the two graphs and the axes. **4**
27. Solve for x: $\frac{3x+2}{7} + \frac{4(x+1)}{5} = \frac{2}{3}(2x + 1)$ **4**
28. Draw the graph of the equation 3x + 4y = 12 and find the co-ordinates of the points of intersection of the equation with the co-ordinate axes. **4**
29. Half of the perimeter of a rectangular garden is 36m. Write a linear equation which satisfies the given data. Also represent it in the form of a Graph. **4**
30. If the work done by a body on application of a constant force is directly proportional to the distance travelled by the body, express this in the form of an equation in two variables and draw the graph of the same by taking the constant force as 5 units. Also from the graph read the work done when the distance travelled by the body is: **4**
    i. 2 units
    ii. 0 units