Class IX	Christukula Mission Hr. Sec. School 1st Semester Assessment 2020 Math	MM- 50

SECTION-A [26 MARKS]

Answer all the questions from this section

Q 1. (a) Find two rational number between ¾ and 1 $\frac{1}{5}$ [2]

(b) Express $0.1\overline{36}$ in the form $\frac{p}{q}$, p,q are integers ,q≠0 [3]

(c) Rationalize the denominator of $\frac{1}{\sqrt{6}+\sqrt{3}-\sqrt{2}}$ [3]

Q 2. (a) If x^2-5x=1 , find $x^2+\frac{1}{x^2}$ [2]

(b) If 2x+3y = 8 and xy=2 find the value of 2x – 3y [3]

(c) A certain sum amounts to ₹ 21,600 in 2 years and ₹ 31,104 in 4 years at the same rate compounded annually . Find the rate and the sum. [3]

Q 3. (a) Factorise $(a^2-a)^2$ - 8(a^2-a) + 12 [3]

(b) Solve for x and find the value of $(18x)^{1/2}$, if $5^{2x+3} = 5^{2x+1} + 600$ [3]

(c) A boat goes 30 km downstream and 36 km upstream in 6 hours. It takes 5 hours to go 45 km downstream and 18 km upstream. Determine the speed of the stream and the speed of the boat in still water. [4]

SECTION-B [24 MARKS]

Answer any three questions from this section

Q 4. (a) Insert three irrational numbers between $\sqrt{3}$ and $\sqrt{8}$. [2]

(b) A certain sum of money yields ₹ 927 as compound interest in 2 years time at 6% compounded yearly. Find the sum. [3]

(c) If a+b+c = 0, find the value of $\frac{(a+b)^2}{ab} + \frac{(b+c)^2}{bc} + \frac{(c+a)^2}{ca}$ [3]

Q 5. (a) Evaluate using algebraic formula [2]

$$\frac{(0.83)^3 + (0.17)^3}{(0.83)^2 - (0.83)(0.17) + (0.17)^2}$$

(b) Solve the following equation by the method of cross multiplication

4x + 5y =2 [3]

7x – 6y = 33

(c) If $x^a = y^b = z^c$ and xyz = 1, find the value of $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}$ [3]

Q 6. (a) find x if $\sqrt{6^0 + \frac{1}{3}} = (0.75)^{2x-3}$ [2]

(b) Solve : $\frac{12}{x+y} + \frac{21}{x-y} = 7$ [3]

$\frac{9}{x+y} - \frac{14}{x-y} = 1$

(c) Five years ago, the age of a father was 7 times his son's age at that time. Five years from now, father's age will be three times the age of his son. Find their present ages. [3]

Q 7. (a) Express $\frac{5+\sqrt{3}}{3-2\sqrt{3}}$ in the form $a+b\sqrt{3}$ [2]

(b) A machine costing ₹50,000 estimated to depreciate by 25% in the first year and by 10% in the succeeding years. Calculate its value after 3 years. [3]

(c) There are some children in a school bus. If two children sit on each seat, then 1 child has to stand. If 3 children sit on each seat, then 8 seats will be empty. How many children are there in the bus? [3]

Q 8. (a) Rationalize the denominator $\frac{4+\sqrt{3}}{2+\sqrt{3}}$ [2]

(b) The rate of depreciation of machine is 16% p.a. The present value of the machine is ₹9,261. Find its value 3 years ago. [3]

(c) In the 9^{th} standard of a school, thrice the number of girls exceeds the number of boys by 24. In an athletic meet, 10% of girls and 25% of boys participated which added up to 11 students. How many boys and girls were there in the class? [3]

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