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Maths

Max Marks: 100

1. Tick (√) the correct option in the following parts, each carries 2 marks (10 x 2 = 20)

i) Additive inverse of $\frac{-5}{-6}$ is:-

a) $\frac{5}{6}$ b) $\frac{-5}{6}$ c) $\frac{-6}{5}$ d) $\frac{6}{5}$

ii) $2^0 + 3^0 + \left(\frac{1}{4}\right)^0$ is equal to:-

a) $\frac{21}{4}$ b) 0 c) 9 d) 3

iii) $\left(\frac{-4}{3}\right)^7 \times \left(\frac{-4}{3}\right)^8 \div \left(\frac{-3}{4}\right)^{-5}$ is equal to:-

a) $\left(\frac{-4}{3}\right)^{20}$ b) $\left(\frac{-4}{3}\right)^{10}$ c) $\left(\frac{-3}{4}\right)^{10}$ d) $\left(\frac{-3}{4}\right)^{20}$

iv) $\sqrt{0.0016}$ is equal to:-

a) 0.04 b) 0.004 c) 0.4 d) 4

v) The unit digit of the cube of 476 is :-

a) 4 b) 8 c) 6 d) 2

vi) Which of the following numbers is **not** divisible by 9?

a) 24354 b) 24453 c) 24534 d) 24564

vii) 20 paise as a percentage of a rupee is

a) 5% b) 10% c) 15% d) 20%

viii) Two quantities x and y are said to be in inverse variation if:

a) $xy = k$ b) $x \propto \frac{1}{y}$ c) $x = \frac{k}{y}$ d) All of these

ix) Class size of the class interval 30 – 40 is:-

a) 30 b) 35 c) 10 d) 70

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x) Range of the data 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 is:-

a) 1 b) 10 c) 9 d) 5

All the questions from Q.No. 2 to Q.No. 9 carry 4 marks each (8 x 4 = 32)

2. Insert three rational numbers between $\frac{1}{4}$ and $\frac{1}{2}$.

3. Find the square root of 12.0409

4. Evaluate:- $\sqrt[3]{512 \times 729}$

5. Calculate compound interest on Rs6000 at 10% per annum for two years.

6. In fig.1, RENT is a rectangle. Its diagonals meet at O.
   Find x if OR = 2x + 4 and OT = 3x + 1.

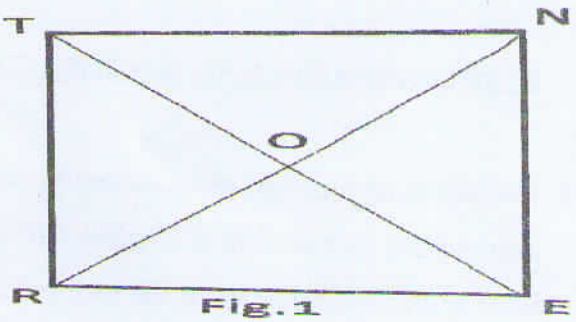

Fig.1

7. Solve the equation:- $\frac{15}{4} - 7x = 9$

8. Construct a rhombus ABCD given that AB = 3 cm.

9. If $x - \frac{1}{x} = 3$, evaluate $x^2 + \frac{1}{x^2}$

All the questions from Q.No. 10 to Q.No. 17 carry 6 marks each (8 x 6 = 48)

10. The adjoining pie chart gives the marks scored in an examination by a student in English, Social Science, Science and Mathematics. If the total marks obtained by the student were 180, Calculate his marks in each subject

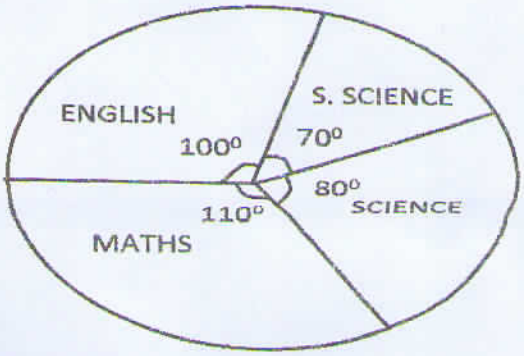

fig.2

Do the calculations in the given table.

Subject	Marks Obtained
ENGLISH	
S. SCIENCE	
SCIENCE	
MATHS	

11. A shopkeeper purchased 200 bulbs for Rs 10 each. However 10 bulbs were fused and had to be thrown away. The remaining were sold at Rs 20 each. Find the gain or loss%.

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12. Divide $6x^3 - 11x^2 + 7x + 5$ by $2x - 3$.

13. Factorize: - $3x^5 - 48x$.

14. In fig.3, ABCD is a parallelogram. Find the values of x, y and z

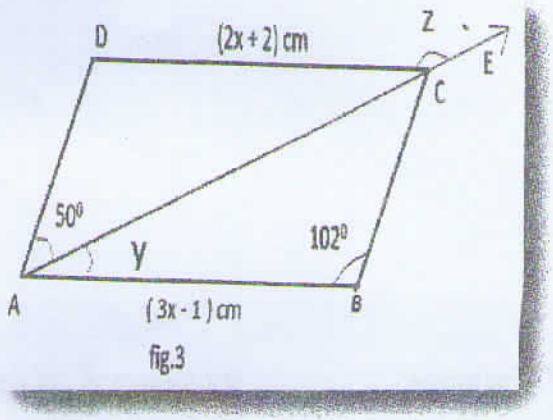

fig.3

15. The total surface area of a cylinder is 880 cm^2 and the circumference of its base is 44 cm. Find the height of the cylinder.

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16. In fig.4, ABCD is a trapezium. AB || CD and AB = 4CD. If the area of trapezium ABCD = 10000 m^2 and perpendicular distance between two parallel sides is 100m, find the length of the side AB.

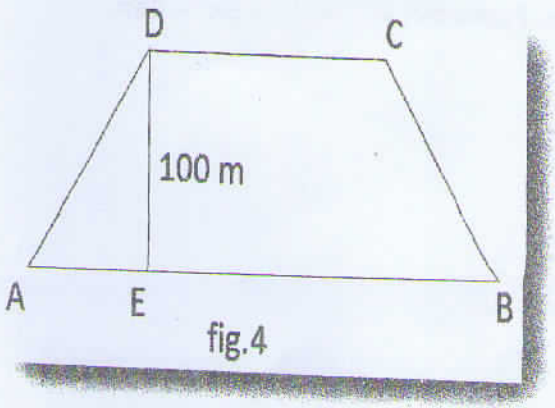

fig.4

17. Factorize:- $9(3x+2)^2 - 4(2x-1)^2$