City International School

FIRST TERMINAL EXAMINATION – 2013 - 2014

Date : 01/08/2013 **Marks : 80**

Std : VIII **Subject : Mathematics** **Time** : 2½ hrs

Answers to this Paper must be written on the paper provided separately.
You will not be allowed to write during the first 15 minutes.
This time is to be spent in reading the question paper.
The time given at the head of this paper is the time allowed for writing the answers.
Attempt all questions form Section A and any four questions from Section B.
The intended marks for questions or parts of questions are given in brackets [ ]

SECTION A [40 MARKS]

Attempt all questions.

Q.1 **a.** Solve to find the value of x: $\frac{3x+2}{x-1} = \frac{3x+4}{x+1}$ **(3)**

b. Simplify: $\frac{\frac{1}{3} \div \frac{1}{3} of \frac{1}{3}}{\frac{1}{3} of \frac{1}{3} \div \frac{1}{3}}$ **(3)**

c. Expand: i. $\left(2x + \frac{1}{2x}\right)^2$ ii. $(a + 2b - 3c)^2$ **(4)**

Q.2 **a.** Simplify: $8x^5 \div 32x^{-2}$ **(2)**

b. A tap can fill a tank on 24 hours and on outlet can empty the full tank in 30 hours. In how many hours the empty tank will be filled, if both the tap and the outlet are opened simultaneously? **(2)**

c. Subtract $7x^2 - x^3 + 9x + 5$ from $2x^3 - 10x - x^2 + 2$. **(2)**

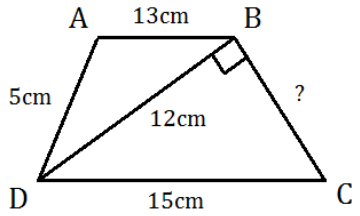
d. Find the ratio of: 3 years 6 months : 2 years 9 months **(2)**

e. Find the square root of: $\sqrt{23104}$ **(2)**

Q.3 **a.** Simplify: $\frac{4.3 \times 4.3 - 1.7 \times 1.7}{4.3 \times 4.3 + 2 \times 4.3 \times 1.7 + 1.7 \times 1.7}$ **(3)**

b. Divide ₹1089 among A, B & C in the ratio $2\frac{1}{4} : 3\frac{1}{2} : 4\frac{1}{3}$. **(3)**

c. Calculate the area of □ABCD. **(4)**



Q. 4 **a.** i. Multiply $(3x^2 + 7x - 9)$ by $(2x - 5)$. **(2)**

ii. Divide $(6x^5 - 21x^4 - 9x^2)$ by $3x^2$. **(2)**

b. 10 labourers can repair a road in 18 days. In how many days can 30 labourers repair it? **(3)**

c. Find the cube root of: $\sqrt[3]{157.464}$ **(3)**

SECTION B [40 MARKS]

Q. 5 **a.** Find the HCF of: 812, 928, 1102 **(3)**

b. The area of a rectangular park is 2160m^2. The length & breadth of the park are in the ratio 5:3. Find the cost of fencing the park at ₹5 per meter. **(3)**

c. i. Evaluate 98^2. **(2)**

ii. If a + b + c = 9 and ab + bc + ca = 35, find the value of $a^2 + b^2 + c^2$. **(2)**

Q. 6 **a.** Find the square root of $\sqrt{14.72}$ upto 2 decimal places. **(3)**

b. Show that: $\left(\frac{x^a}{x^b}\right)^{(a+b)} \times \left(\frac{x^b}{x^c}\right)^{(b+c)} \times \left(\frac{x^c}{x^a}\right)^{(c+a)} = 1$ **(3)**

c. Solve: $\frac{3}{x-1} + \frac{4}{x-2} = \frac{7}{x-3}$ **(3)**

Q. 7 **a.** A can do $\frac{1}{5}$ of work in 2 days, B can do $\frac{1}{3}$ of work in 5 days and C can do $\frac{1}{2}$ of work in 5 days. How many days will they take to complete the work together? **(3)**

b. Simplify: $\left[\frac{1}{4} \div \left\{1\frac{1}{4} - \frac{1}{2}\left(2\frac{1}{2} - \overline{\frac{1}{4} - \frac{1}{6}}\right)\right\}\right]$ **(3)**

c. Find the mean proportional between 2.5 and 14.4 **(2)**

d. Add $6a + 2b + 4c$, $7a - 3b - 3c$ and $3a + 9b - 3c$. **(2)**

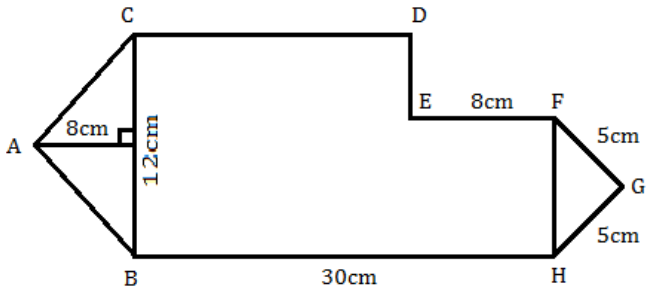
Q. 8 **a.** If $\left(x - \frac{1}{x}\right) = 2$, find the values of: **(4)**

i. $x^2 + \frac{1}{x^2}$ ii. $x^4 + \frac{1}{x^4}$

b. If 3 dozen apples cost ₹252, how many apples can be bought for ₹392? **(3)**

c. Find the value of x: $\frac{x^{2a-3} \times (x^2)^{a+1}}{(x^4)^{-3}} = (x^3)^3 \div (x^6)^{-3}$ **(3)**

Q. 9 **a.** Find the area of the following figure: **(4)**



b. IF A : B = $2\frac{2}{3} : 4\frac{1}{2}$ & B : C = $\frac{1}{2} : 3$, find: **(3)**

i. A : C ii. A : B : C

c. Divide $(3x^3 + 16x^2 + 26x + 15)$ by $(x + 3)$. **(3)**