

GANIT PRABHUTWA EXAMINATION

Date : 13 - 12 - 2015

Std. VIII

Total Marks : 100

Time : 3 Hours

N.B. Proper procedure and explanation is necessary.

Q.1)

10

- (1) The opposite angles of a cyclic quadrilateral are $(2x)^\circ$ and $(3x + 10)^\circ$, find x .
- (2) Simplify : $(11m^2 - 9m) + (3m^2 + 4m) - (2m^2 - 5m)$
- (3) Solve : $2x - 1 = \frac{x+1}{3}$
- (4) 0.5 of x is equal to 0.07 of y . Find the ratio $x : y$
- (5) A train of 250 meter in length crosses a man standing at the side of the track in 20 seconds. Find its speed in km/hr.

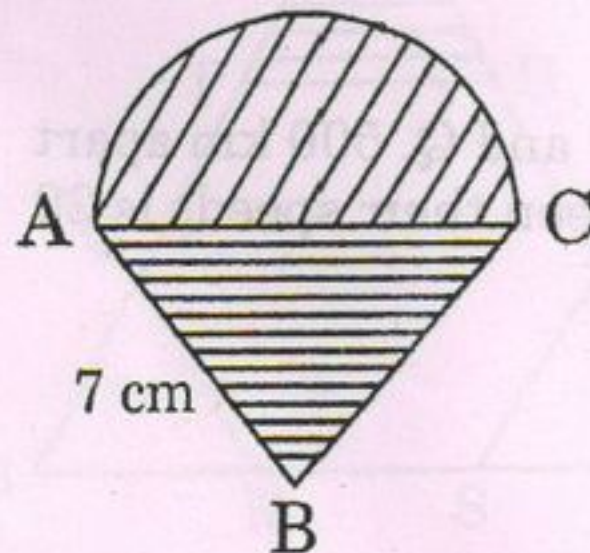
Q.2]

15

- (1) Factorise : $x^3 - 8y^3 + 6x^2y - 12xy^2$
- (2) The average age of the students in a class is 17 years. The average age of the students and their class teacher is 18 years. Find the number of students, if the age of the class teacher is 52 years.
- (3) What would be the amount of Rs. 32,000 in one and a half year at 10 p.c.a. ? [Interest calculated half yearly be compound interest.]

(4) Simplify : $5^{-4} \times (125)^{\frac{5}{3}} \div (25)^{-\frac{1}{2}}$

(5)



As shown in the adjacent figure,
 ΔABC is an equilateral triangle.
A semicircle is drawn on side AC.
Find the area of the whole figure.

$(\sqrt{3} = 1.73) (\pi = \frac{22}{7})$

Q.3)

15

- (1) Solve the following equation.

$$\left(\sqrt[3]{4}\right)^{2x + \frac{1}{2}} = \left(\sqrt[3]{8}\right)^5$$

- (2) Dhondiba does a work in $7\frac{1}{2}$ hours. Kondiba does the same work in 5 hours. In how many hours can they complete the work, if they work together?

- (3) Construct a rhombus ABCD, such that $l(AB) = 4.3$ cm, $m\angle ABC = 135^\circ$.

- (4) Convert $0.\overline{09}$ in the form of $\frac{p}{q}$, where p, q are integers and $q \neq 0$.

- (5) In a class, the number of boys is more than the number of girls by 12% of the total number of students in the class. What is the ratio of the number of boys to girls.

Q.4)

20

- (1) If $x - y = 6$, $xy = 2$ find the value of $x^4 + y^4$.

- (2) Factorise : $2x^6 - 128$

- (3) Find the smallest number such that when it is divided by 28, 38 and 48 leaves the remainders 18, 28 and 38 respectively.

- (4) If a commission of 10% is given on the marked price of a book, the profit is 20%. What will be the profit percentage, if the commission is increased to 15%?

- (5) The length and breadth of a rectangle are in the ratio 4 : 3. If the length is increased by 2 and the breadth is decreased by 4, the ratio becomes 2 : 1. Find the length and the breadth of the rectangle.

Q.5)

20

- (1) Simplify : $\frac{2x^2 + 5xy - 3y^2}{2x^2 - 7xy + 3y^2}$

- (2) Two trains simultaneously start from stations P and Q, 500 km apart and meet after five hours. If the difference between their speeds is 20 km/hr, find their speeds.

(3)



In the adjoining figure,
 O is the centre of the circle.
 seg $OP \perp$ chord MN.
 Prove that seg $MP \cong$ seg NP.

Total Marks : 100
 Time : 3 Hours

(4) By which smallest number should 281216 be divided, so that the quotient will be a perfect cube ?

(5) Divide $x^4 + x^2 + 1$ by $x^2 - x + 1$. Write the quotient and the remainder.

Q. 6)

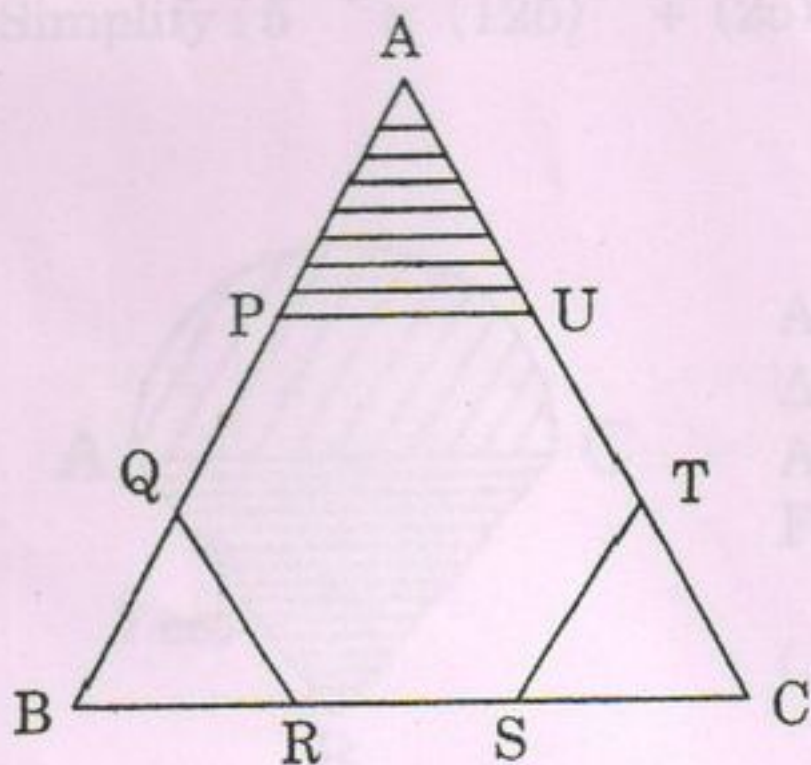
20

(1) Perimeter of a rectangle is 24 cm. The length of its diagonal is $\sqrt{84.5}$ cm.
 Find the area of the rectangle.

(2) Distance between two places P and Q is 400 metre. The speeds of running of Ram and Rahim are in the ratio 6 : 5. Rahim starts running from P towards Q. Ram starts running from P towards Q at the instant, when Rahim covers a distance of 100 metre. Find how far away Ram is from Q, when Rahim reaches at Q.

(3) Find the smallest four digit number x such that $(x - 15)$ is divisible by 5, $(x - 16)$ is divisible by 8 and $(x - 22)$ is a multiple of 11.

(4)



In the adjoining figure,
 PQRSTU is a regular hexagon.
 $A(\Delta ABC) = 90 \text{ cm}^2$.
 Find the area of the shaded region.