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First Term Examination – 2018

Grade:09

Mathematics

Time: 2.30 hours

Part-I

Answer all questions in this paper

1. $\frac{3}{4} = \frac{21}{\square}$ Fill in the blanks by using suitable number.

2. Simplify: $(+7.4) - (-2.6)$

3. Find the value of $(-1)^4 \times 5^2$

4. Solve: $3x - 1 = 20$

5. How much is $\frac{2}{5}$ of 1500 rupees?

6. Factorize: $2x + 18$

7. Write 23_{ten} as a binary number

8. Write the followings for the number pattern 3, 8, 13, 18:

a. common difference

b. general term

9. Find the value of $\sqrt{\frac{32}{50}}$

10. If $x = 2, y = 3$ Find the value of $\frac{1}{2}x + \frac{2}{3}y$?

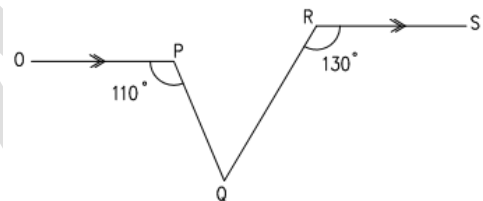
11. The apples bought for Rs.1000, were sold for Rs.1300.

- a. What is the profit gained?
- b. What is the profit percentage?

12. If $A = \{ \text{The letters in the word MATHEMATICS} \}$, find $n(A)$.

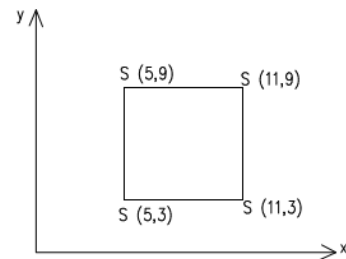
13. Express 100cc medicine in l?

14. Find the value of \widehat{PQR} using the information in the given figure.



15. Fatima decided to cut pieces of length $1\frac{3}{4}m$ from a 21m long cloth?

16. Find the area of square PQR in square units.



17. If 3 is the mode of the data distribution of numbers 3, 4, 5, 6, 9, 2, x is 3,

- a. Find x .
- b. Find the median.

18. If $(x - 5)(x - 1) = x^2 + bx + c$, Find the value of a and b .

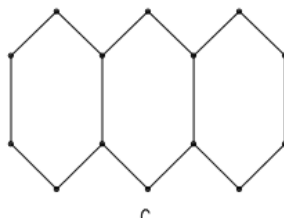
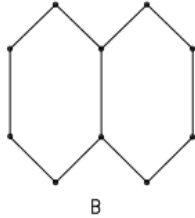
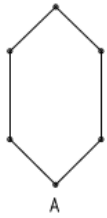
19. The faces of an unbiased dice were marked 1, 2, 3, 4, 5 and 6. When it is tossed find the probability of getting a square number?

20. The volume of a cube is $8cm^3$. What is the length of each side?

Part- II

Answer the first questions and another four questions.

1) Activity about 'Number pattern' in a classroom given below



a. The diagram given below shows the first three stages of a pattern formed with ice sticks with equal length.

- (i) Draw the next pattern of the above pattern? (2marks)
(ii) Find the first term of the above pattern? (1marks)

(iii) Write the first five terms of the pattern as a series. (2marks)

(iv) Find the common difference? (1marks)

(i) Find the common term using following activities

$$T_1 = 5 \times 1 + 1 = 6$$

$$T_2 = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$$

$$T_3 = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$$

$$T_4 = \underline{\hspace{2cm}} = \underline{\hspace{1cm}}$$

$$\text{Common term } T_n = \underline{\hspace{2cm}}$$

(4mark)

(ii) A Student says "8th terms of pattern can make using 40 ice sticks", is it correct? Give the reason?

(2marks)

(iii) Draw a another pattern using above ice sticks without changing number

(2marks)

(iv) Find the $(n-1)^{\text{th}}$ term of this series?

(2marks)

2) Simplify:

(i) $\frac{7}{12} + \frac{1}{4}$

(ii) $\frac{1}{2} - \frac{2}{5}$

(iii) $\frac{3}{8} \times \frac{4}{15}$

(iv) $8 \div \frac{4}{5}$

(v) $(\frac{1}{6} + \frac{1}{12}) \div \frac{2}{3}$ of $\frac{5}{8}$

[2+2+2+2+3marks]

3) a) Find the value of each of the following expressions when $p = \frac{1}{4}$, and $q = (-2)$.

(i) $4p$

(ii) $-3q + 2$

(iii) $12p + \frac{1}{2}q$

[1+2+2marks]

b) (i) Factorize: $3a + 3$

(ii) Expand and Simplify: $(m + 3)(m - 2)$

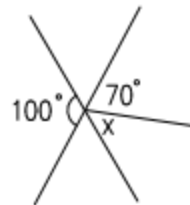
(iii) Find the value by using the knowledge of factorizes.
 $98^2 - 2^2$

[2+2+2+2+3marks]

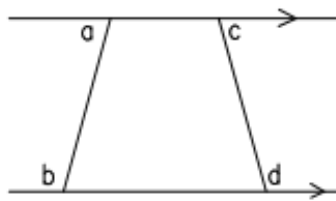
4) a) (i) Simplify: $11001_{\text{two}} + 111_{\text{two}} - 1010_{\text{two}}$

(ii) Write 101101_{two} as a decimal number.

b) (i) Find the value of x ?



(ii) In the given figure,
Show that $\hat{b} - \hat{c} = \hat{d} - \hat{a}$.



$a + \underline{\hspace{2cm}} = 180^\circ$ []

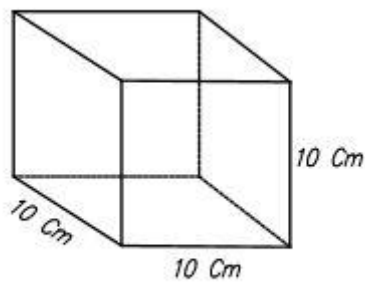
$c + \underline{\hspace{2cm}} = 180^\circ$

$a + \underline{\hspace{2cm}} = c + \underline{\hspace{2cm}}$ []

 =

[2+2+1+6marks]

5)



A



B

- a) (i) What is the geometric name of figure A? What is the name of figure B?
(ii) Find the capacity of container A in l ?
(iii) How many times should water be poured into the container A from the Completely filled container B
- b) A cuboid shaped tank of base area 2000 cm^2 is filled up to a height of 0.3m with water. The height of the tank is 0.5 m
- (i) Find the volume of water in the tank in litres.
(ii) If the water is supplied to the tank at the rate of 5l per minute, how much time is needed to fill the completely.

6)

Shop A

A discount of 10% on all purchases

Shop B

$\text{Rs. } 200/=$ discount for the dress if price is between $\text{Rs. } 1000$ to $\text{Rs. } 2000$

$\text{Rs. } 250/=$ discount for the dress if price is above $\text{Rs. } 2000$;

Geetha likes to check the prices of both shops. The price frock is $\text{Rs. } 1500/=$ in both shops

- (i) How much of money wants to buy that frock from Shop A
(ii) How much of money wants to buy same frock from Shop B
(iii) Which shop is profitable for Geetha to buy that frock
(iv) Mala decide to buy a saree is price $\text{Rs. } 4000$, which shop is profitable that, explain with the reason
(v) If mala bought the saree from Shop B, Find the percentage of discount?