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First Term Test - 2019

ගණිතය **- I, II**

Mathematics - **I, II**

Duration :- 2 hours

Name :- .... Index No :-

Grade **9**

Part I

- **Answer all the questions.**

1) Write common differences from the number pattern of 7, 9, 11, 13…

2) Consider the general term Tn=2n-1 and find the 20th term.

3) Write decimal number of 51 as a binary number.

4) Find the value of
   $1101_{two} + 111_{two}$

5) Find the value of
   $110011_{two} - 10001_{two}$

6) If the value of $\dfrac{1}{5}$ of money is Rs.300.Find its total amount of money.

7) If the buying price of a good is Rs.900.In order to get a profit of 5%, calculate the marked price.

8) Marked price of a certain good is Rs.1500 with a discount of 10%, what is the selling price after the discount?

9) The length of a rectangle is twice its breadth and 3cm.Write an expression for its area.

10) Find the value of

$$(\dfrac{1}{5} + \dfrac{3}{10}) \text{ of } \dfrac{1}{5}$$

11) Factorize

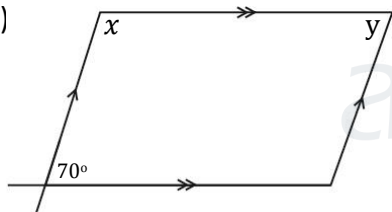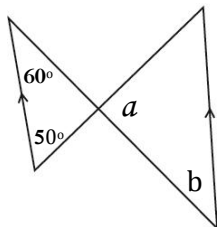$$x^2 +10x -4x -20$$

12) Factorize

$$1-100y^2$$

13) Find the value of $\dfrac{1}{5}$ of 1kg.

14) Find the value of 5-8m , when m = ($-\dfrac{1}{2}$)

15)   Find the value of x and y.

16)   Find the value of a and b.

17) Simplify. $(x - 2)(x + 3)$

18) When selling a vehicle worth of Rs.3 000 000 with Rs.60 000 as a commission for the broker. Calculate the percentage of the commission.

19) The length, breadth and height of a certain container are 10cm, 8cm and 5cm respectively. Find the capacity of the tank in milliliters.

20) Find the number which should be both square number and triangular number between 1 and 50.

Part II

- **Answer only Six questions**

01) (A) Simplify.

   i. $1\dfrac{2}{7}$ of ($2\dfrac{2}{3}$ - $1\dfrac{1}{2}$)

   ii. $\dfrac{2}{3}$ x $\dfrac{3}{5}$ + $1\dfrac{1}{10}$

   (B) A person gives $\dfrac{1}{3}$ of his money to his wife, half of the remaining to his two children equally Donated. $\dfrac{1}{4}$ of remaining money is given for charity.

   i. What is the money received by one child from the whole amount?
   ii. Which amount of money is given to the Charity from the whole amount?
   iii. If the amount of money given to the charity is Rs.1000. find the whole amount.

02) (A)

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○ ○        ○ ○ ○        ○ ○ ○ ○
○ ○        ○ ○ ○        ○ ○ ○ ○        ------------------------
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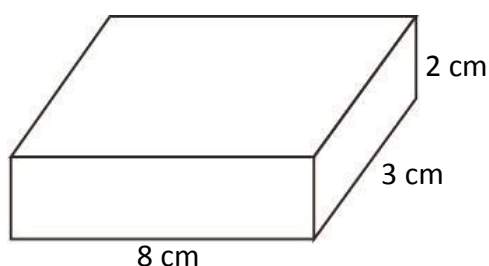
   i. Form the next 4th pattern.
   ii. Find the General term of this number pattern.

   B. The general term of a number pattern is

   Tn = 5 - 2n

   i. Find the 20th term.
   ii. Which term is equal to (-45).
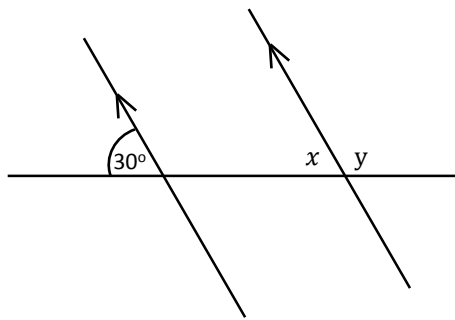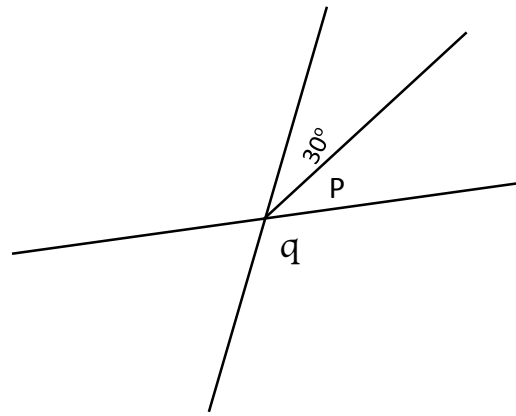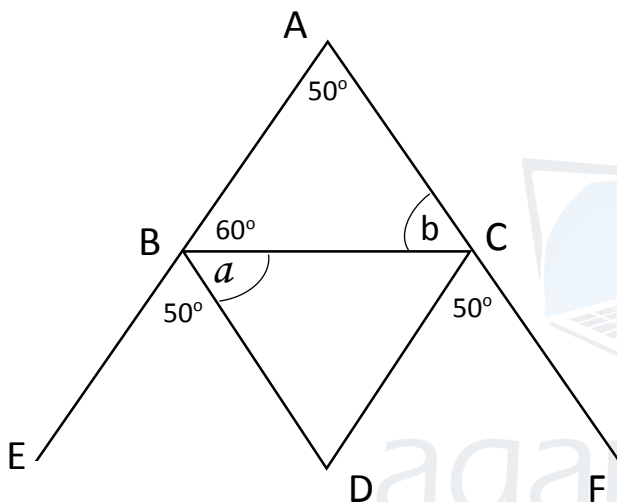   iii. Find the (n+1) term in terms of 'n'.

03) (A) Find the capacity in milliliters.

   (B) The length, breadth and height of a certain water tank are 10m, 8m, and 4m respectively.

   i. Find the capacity of the tank in liters.
   ii. Determine the capacity in liters in the water tank if the tank is filled with water only up to a height 1.5m.
   iii. Determine the volume of water required to fill the whole tank.
   iv. The volume of water already filled in the tank poured into cuboid shaped tank with base area of 60m². Find the height of the water in the cuboid shaped tank.

04)

Find the magnitude of the $\hat{x}$ and $\hat{y}$

Find the magnitude of $\hat{p}$ and $\hat{q}$

Find the magnitude of a and b

If BD//AC   Show that AB//DC

05) (a). Find the value of the expression when

x = (-2) and y = 3

i. $2x$ - 3y

ii. $\dfrac{x}{2}$ - $\dfrac{y}{3}$

(b). Factorize.

i. $2x^2 - 7x + 6$

ii. $6x^2 + 2y^2 - 4xy - 3xy$

iii. Factorize and find the value.

$103^2 - 3^2$

06) (a)

If a vender earns a profit of 15% by selling goods at the price of Rs.6440.Find the price at Which the vender brought the goods.
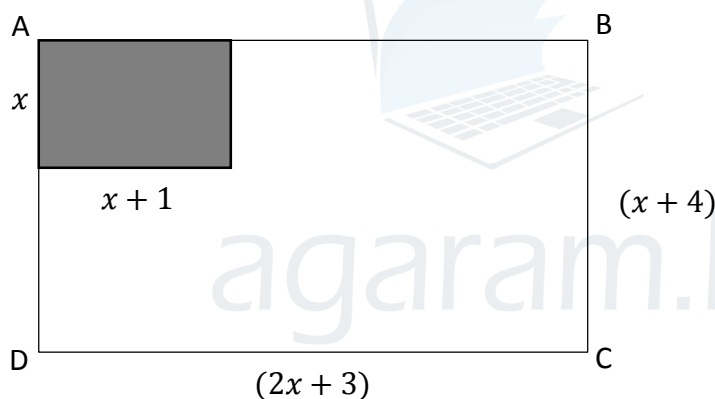
(b)

A book shop
A discount of 10% on All purchases of books.

B book shop
A reduction of Rs.200 on all Purchase of value greater than Rs.2000.

    I.   How much is needed to be paid by Hemali when purchasing books of price Rs.3000 From A book shop?

   II.   How much is needed to be paid by Achini when purchasing a book of price Rs.2500 From B book shop?

  III.   How much is needed to be paid by Achini when purchasing a same book from A Book shop.

  IV.   Is it more beneficial for the Achini to buy books from shop A or from shop B?

07)

From the given figure cut off the coloured area from ABCD rectangular lamina.

    i.   Write the expression and expand it for the area of the ABCD Rectangular lamina.

   ii.   Write the expression and expand it to the coloured area.

  iii.   Determine the algebraic expression for the remaining part of the rectangular lamina.

(b) Remove the brackets and simplify.

    1) $(x-3)(x-2)$

    2) $(2x+1)(x-3)$