

## SECOND TERM TEST - 2018 JULY

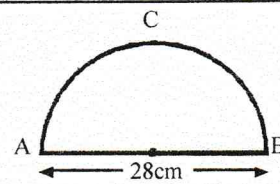
Name / Index No:

- Answer all the questions on this paper itself.
- Each question carries 02 marks and 50 marks are given to this part.

## Part A

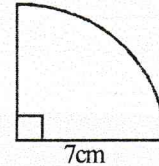
(01) In between which two whole numbers the value of  $\sqrt{17}$  lies ?

(02) In the given figure, ACB is a semi – circle.  
Find the length of arc ACB

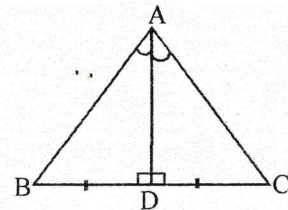


(03) Find the mode and the median of data collection in below.  
30, 35, 42, 48, 48, 50, 52, 55, 60

(04) Find the sector shown in the figure.

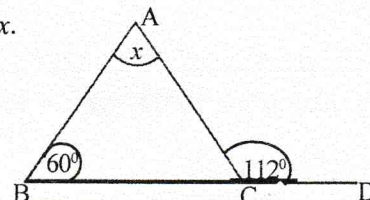


(05) According to the data given in the figure, write down two cases of congruency of  $\triangle ABD$  and  $\triangle ACD$ .



(06) Find the factors  $x^2 - 64$

(07) According to the data given in the figure, find the value of  $x$ .



(08) Find the least common multiple of  $3x$ ,  $4x^2$ ,  $6y^2$

(09) Write down two features of a parallelogram

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(10) Simplify  $\frac{1}{2x} - \frac{1}{8x}$

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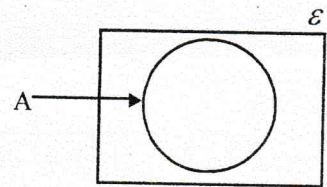
(11) Write down in index form  $\log_2 16 = 4$

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(12) 24 of 40 children in a class are girls. Express the number of girls as a percentage of total number of children.

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(13) Shade the region  $A'$  in the venn diagram



(14) In the straight line represented by  $y = 3x - 2$ ,

i. What is the gradient ?

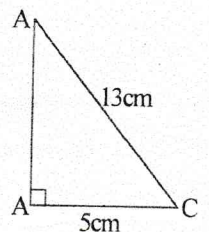
ii. What is the intercept ?

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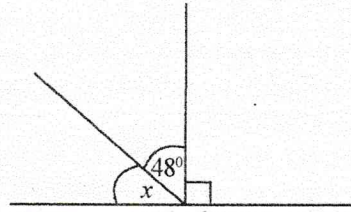
(15) 8 men can complete a task in 6 days. How many days will it take to complete that task by 12 men ?

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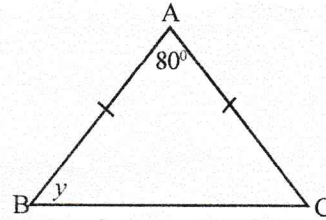
(16) According to the data in the figure, find the length of side AB.



(17) Find the value of  $x$  in the figure.

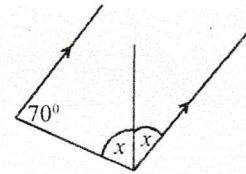


(18) Find the value of  $y$  in the figure.

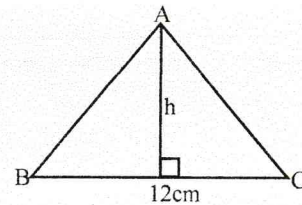


(19) Subject  $a$  in the formula  $v^2 = u^2 + 2as$

(20) Find the value of  $x$  in the figure.



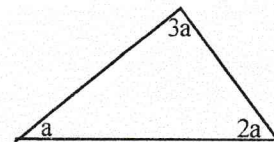
(21) The area of the triangle ABC in the figure is  $48\text{cm}^2$ .  
Find the value of  $h$ .



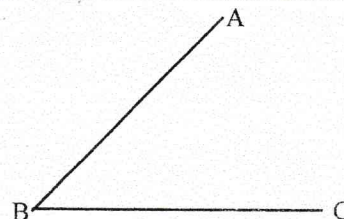
(22) There are 5 identical cards numbered from 1 to 5 in a vessel. A card is taken out from the vessel randomly. Find the probability of number of that card being an even number.

(23) A car travels 200 km distance with a uniform speed of 40 kilometers per hour. What is the time spent for that journey ?

(24) According to the data given in the figure, find the value of  $a$ .



(25) Show in a rough sketch to find the point D lies on AB which is equidistant to point B and C.



Part B

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- Answer all the questions on this paper itself.
  - Each question carries 10 marks and 50 marks are given to this paper.
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(01) Amal travels exactly half of a journey by bus, travels  $\frac{2}{3}$  of the rest by bicycle and travels rest of 6km by walking.

- i) Which fraction of the whole journey was he travelled by bicycle ?
  
  
  
  
  
  
  
  
  
  
- ii) Which fraction of the whole journey was he travelled by bus & by bicycle ?
  
  
  
  
  
  
  
  
  
  
- iii) Which fraction of the whole journey was he travelled by walking ?
  
  
  
  
  
  
  
  
  
  
- iv) Calculate total distance of the journey.

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(02) a) A provincial council is charged 8% of the assessed value of a house as rates. If the assessed value of the house is Rs. 150 000,

i) Find the amount of rates has to be paid for a year.

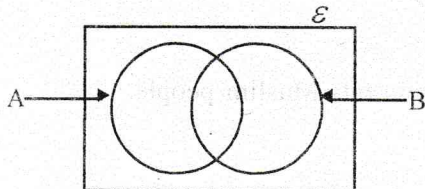
ii) Find the amount of rates has to be paid for a quarter.

b) 35% duty is charged when an electric item worth in Sri Lankan rupees 7500, is imported What is the value of it after paying duty ?

c) First Rs 500 000 annual income of a person is tax free. 12% of income tax is charged for the rest of income. If he earns annual income of Rs 800 000, how much should he pay as annual income tax ?

- (03)  $A = \{\text{Prime numbers between 0 and 10}\}$   
 $B = \{\text{Even number between 0 and 10}\}$   
 $\mathcal{E} = \{\text{Natural numbers between 0 and 10}\}$

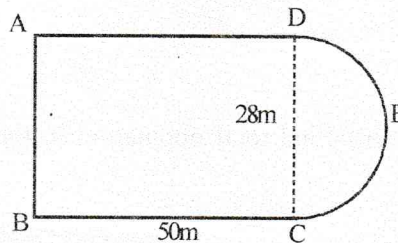
- i) Write the sets A, B and  $\mathcal{E}$  with elements as listing
- ii) Insert elements of sets  $\mathcal{E}$ , A and B in below Venn diagram.



- iii) According to the above Venn diagram, write elements of below sets.

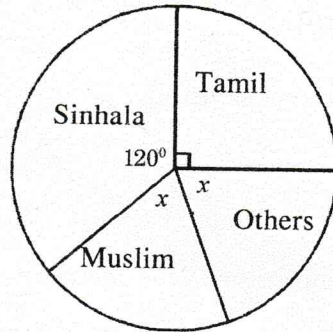
- a)  $A \cap B$   
b)  $(A \cup B)'$   
c) Shade the region  $A' \cap B$  in the Venn diagram.

- (04) A swimming pool consists of a rectangular part and a semi-circular part. It is shown in the figure.



- i) Find the arc length of semi-circular part
- ii) Find the perimeter of the swimming pool.
- iii) Find the area of the swimming pool.
- iv) It is hoped to make a fence around the swimming pool. Find the expense for it as Rs 250 per 1m.

05. Below pie chart shows the population of a city according to the nation.



i) Find the angle in the sector which represents Muslim people.

ii) If Tamil population of the city is 3000, What is the Sinhala population ?

iii) Find total population in the city

iv) Which fraction of whole population is Tamil population ?

## SECOND TERM TEST - 2018 JULY

- Answer ten questions selecting five questions from part A and five questions from part B.
- Each question carries 10 marks.
- Answer five questions only.

## Part A

- (01) a) In a hostel, food is stocked for 25 students for 30 days. After 6 days, 10 students left the hostel. For how many days the remain food stock is sufficient for students in the hostel now ?
- b) Sunil deposited Rs 25 000 in a finance company which pays 12% annual simple interest
- Calculate the interest that he receives at end of a year.
  - If he took deposited amount and total interest after 3 years, find total amount that he received.
  - How long will it take to get Rs 30 000 as interest ?

- (02) An incomplete table prepared to draw graph of the function  $y = x^2 - 3$  is given below

|   |    |    |    |       |    |   |   |
|---|----|----|----|-------|----|---|---|
| x | -3 | -2 | -1 | 0     | 1  | 2 | 3 |
| y | 6  | 1  | -2 | ..... | -2 | 1 | 6 |

- Find the value of y when  $x = 0$
  - Using the scale of 10 small divisions as one unit along the x - axis and along the y - axis, draw the graph of the above function on a graph paper.
- b) According to your graph,
- Write the coordinates of the turning point
  - Write the equation of the axis of symmetry
  - Find the roots of the equation  $x^2 - 3 = 0$
- (03) a) Find the factors  $4x^2 - 9y^2$
- b) The price of 2 books and a pen is Rs 80. 3 pens could be buy from the money that pays to buy 2 books.
- By taking the price of a book as Rs. x and the price of a pen as Rs. y, build up a pair of simultaneous equations in terms of x and y.
  - Solve above pair of simultaneous equations and find the price of a book and the price of a pen separately.

(04) i) Simplify  $\frac{3}{x+3} - \frac{2}{x+2}$

ii) Solve  $\frac{x+2}{x+3} = \frac{3}{4}$

iii) Solve by using factors.  $x^2 - x - 42 = 0$

- (05) Data obtained by testing a sample of match sticks boxes for finding number of match sticks in a match stick box, is shown in below table.

|                              |    |    |    |    |    |    |    |
|------------------------------|----|----|----|----|----|----|----|
| Number of match sticks       | 47 | 48 | 49 | 50 | 51 | 52 | 53 |
| Number of match sticks boxes | 4  | 5  | 10 | 13 | 9  | 7  | 2  |

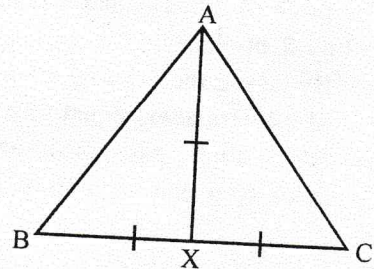
- How many match sticks boxes are included to the sample ?
  - What is the mode of above distribution ?
  - Find mean number of match sticks in a match sticks box to the nearest first decimal place.
  - What is the probability of randomly selected match sticks box having more than 50 match sticks ?
- (06) i) Find the value  
 $\log_{10} 20 + \log_{10} 30 - \log_{10} 6$
- Solve  $\log x + \log_a 5 = \log_a 20 + \log_a 4$
  - Find the value of below expression to the second decimal place by using logarithms table.  

$$\frac{32.5 \times 4.387}{24}$$

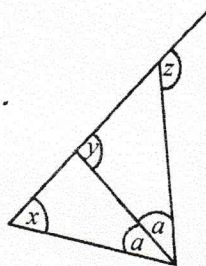
### Part B

- Answer five questions only.

- (07) In a number pattern,  $n^{\text{th}}$  term is  $7n + 3$
- Write first three terms.
  - Find  $20^{\text{th}}$  term
  - Which term is 353 ?
  - Show that 200 is not a term of this number pattern.
- (08) In the following constructions, use a straight edge with cm/mm scale and a pair of compasses only. Show your construction lines clearly.
- Draw a line segment AB such that  $AB = 5$  cm
  - Construct a  $60^\circ$  angle at A and a  $90^\circ$  angle at B.
  - Name the intersecting point of above construction lines in (ii) as O and complete the triangle OAB.
  - Construct the perpendicular bisector of AB and name the intersecting point of it with OA as X.
- (09) a) In triangle ABC, X is the mid point of BC. It  $AX = BX$ , prove that ABC is a right angled triangle.

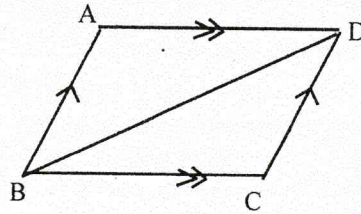


- b) In the figure, prove that  $2y = x + z$





- (10) In the figure, ABCD is a parallelogram. Perpendiculars drawn from A and C to side BD are AE and CF respectively. Prove that



- i)  $\triangle AEB \cong \triangle CFD$
- ii) AECF is a parallelogram

- (11) a) A vehicle starts its journey from city A to city B with a uniform speed of  $30\text{kmh}^{-1}$ . Another vehicle starts its journey from city B to city A at the same time with a uniform speed of  $40\text{kmh}^{-1}$ ; The distance between two cities is 210 km. If both the vehicles start their journey at 6.00 a.m, calculate the meeting time of them.
- b) Water is supplied to a city by a cuboid shaped tank. The length, breadth and height of the tank are 6m, 4m and 3 m respectively.
- i) Find the capacity of the tank in liters.
  - ii) How many hours will it spend to fill the tank completely by a pipe which water flows with a uniform rate at 200 liters per minute ?
- (12) a) 10 of 30 children in a childrens home are boys who are elder than 14 years old. There are 8 girls who are younger than 14 years old. Total number of boys in the children's home is 18.
- i) Show above data in a Venu diagram
  - ii) How many girls are there who are elder than 14 years old ?
- b) There are 8 identical cards numbered from 1 to 8 in a Vessel. A card is taken out randomly from this vessel.
- i) Write the possible sample space.
  - ii) Find the probability of number of selected card being a triangular number.