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| බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව<br>மேல் மாகாணக் கல்வித் திணைக்களம்<br>Department Of Education – Western Province | <b>බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව</b><br><b>மேல் மாகாணக் கல்வித் திணைக்களம்</b><br><b>Department Of Education – Western Province</b> | පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව<br>கல்வித் திணைக்களம்<br>Department Of Education – Western Province |
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**දෙවන වාර ඇගයීම**  
**முதலாம் தவணை பரீட்சை - 2018**  
**Second Term Evaluation**

|                               |                               |                                   |                                |
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| ශ්‍රේණිය } 10<br>தரம் } Grade | විෂය }<br>பாடம் } Mathematics | පත්‍රය } II<br>வினாத்தாள் } Paper | කාලය } 3 hours<br>காலம் } Time |
|-------------------------------|-------------------------------|-----------------------------------|--------------------------------|

- ❖ Answer 10 questions selecting 05 questions from part A and 05 questions from part B.
- ❖ Each question carries 10 marks.

**Part A**

**Answer 05 questions only.**

- (a) The annual assessed value of a house which is lies within the limits of a certain municipal council which charges 12% of annual rates is Rs. 18 000. The house owner is rented it for monthly rental of Rs. 10 000.
  - What is the annual rates that should be paid for the house?
  - What is the annual income the house owner gains by renting the house?
  - If Rs. 10 000 should be allocate for the maintenance of the house, find the net profit he gains after paying the tax.
- (b) If a person who loaned some money for annual simple interest rate of 12% paid Rs. 2 160 as the interest after 3 years, find the amount he loaned.

- An incomplete table of values which is used to draw the graph of the function  $y = 2x^2 - 9$  is given below.

|   |    |       |    |       |    |    |   |
|---|----|-------|----|-------|----|----|---|
| x | -3 | -2    | -1 | 0     | 1  | 2  | 3 |
| y | 9  | ..... | -7 | ..... | -7 | -1 | 9 |

- Fill in the blanks in the table.
- Using a suitable scale, draw the graph of the function.

Using the graph,

- Find the minimum value of the function.
- Write the equation of the axis of symmetry.
- Write the range of values of x where the function decreases positively.

3. In a box there are red and blue colour balls. When the twice of the number of red colour balls is added to the three times of number of blue colour balls, the answer is 37. When the two times of the number of blue colour balls is subtracted from the four times of the number of red colour balls the answer is 18. By taking the number of red colour balls as  $x$  and the number of blue colour balls as  $y$ ,
- Using the above information build up two simultaneous equations.
  - By solving the two equations, find the number of red colour balls and number of blue colour balls in the box separately.
  - When  $\frac{1}{3}$  of the total number of balls in the box is put into a bag, the number of balls in the bag became  $a$ . By taking the number of balls in the box as  $p$ , write down a relationship including  $a$  and  $p$ .
4. If the area of the rectangle ABCD where  $AB = (2x + 1)\text{cm}$  and  $BC = (x + 2)\text{cm}$  is  $77\text{cm}^2$ , build up an quadratic equation including  $x$  and find the length of AB.
5. Information on the number of coconuts plucked from 30 coconut trees in a certain coconut estate is given in the following table. (6 -10 means greater than or equal to 6 and less than 10)

| Class Interval<br>(No of coconuts) | Frequency<br>(No of trees) |
|------------------------------------|----------------------------|
| 6 - 10                             | 5                          |
| 10 - 14                            | 8                          |
| 14 - 18                            | 10                         |
| 18 - 22                            | 4                          |
| 22 - 26                            | 3                          |

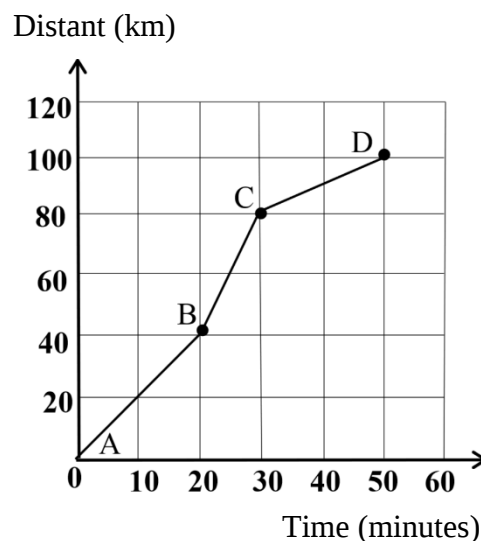
- Using  $mean = \frac{\sum fx}{\sum f}$  where the mid value is denoted by  $x$ , calculate the mean number of coconuts plucked from a tree to the nearest whole number.
  - Explain by giving reasons that the number of coconuts plucked from the state exceeds 350.
6. Length, breadth and height of a cuboid shaped empty tank is 5m, 4m and 3m respectively.
- Calculate the volume of it in liters.
  - Water flows into the tank at a uniform rate of 350l per minute and water flows out of the tank at a uniform rate of 300l per minute. How many hours will it take to fill the tank completely?
  - Find the height of the water in the tank after 45 minutes, in centimeters.

**Part B**

**Answer 05 questions only.**

7. A distance-time graph of the motion of an intercity train is given in the figure.

- i. What is the total distance traveled by the train?
- ii. What is the time taken by the train to complete the journey?
- iii. Find the speed of the train in AB, BC and CD parts separately, in kilometres per hour.
- iv. Find the average speed of the train.



8. i. Find the value.  $\log_{10} 25 + \log_{10} 4 - 1$

ii. Solve.  $\log_2 x = \log_2 5 + \log_2 4$

iii. Find the value using logarithmic tables.

$$232.5 \times 12.4$$

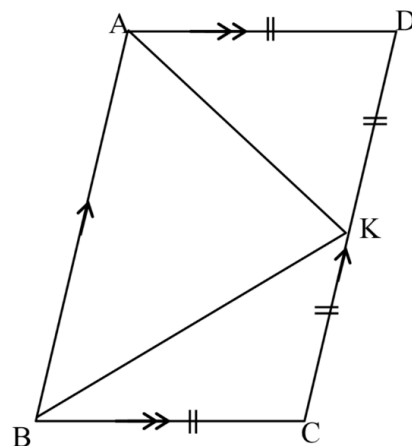
9. Using only the straight edge and the pair of compasses do the following constructions. Show the construction lines clearly.

- i. Construct a line segment where  $PQ = 7\text{cm}$ .
- ii. Construct  $\widehat{PQR}$  such that,  $QR = 6\text{cm}$  and  $\widehat{PQR} = 120^\circ$ .
- iii. Construct the perpendicular bisectors of the sides  $PQ$  and  $QR$  and mark the intersection point of them as  $O$ .
- iv. Name the meeting points of the above perpendicular bisectors and  $PQ$  and  $PR$  as  $S$  and  $T$  respectively. Construct a circle with the centre  $O$  and radius  $OS$ . Measure and write the radius of the circle.

10. In the ABCD parallelogram, mid-point of the side DC is K.  $AD = DK$  and  $BC = CK$ . Copy the diagram on your answer sheet.

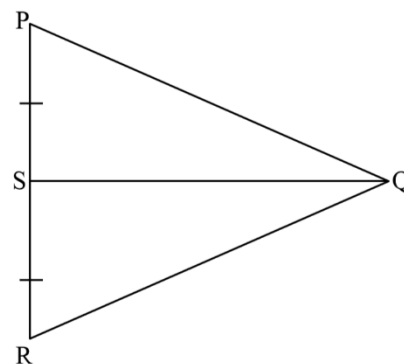
- Show that  $\hat{B}AD$  is bisected by AK and  $\hat{A}BC$  is bisected by BK.
- Show that  $\angle AKB = 90^\circ$ .
- Draw KX parallel to DA and meets the line AB at X. Show that,

$$\text{Area of } \triangle AKB = \frac{1}{2} \text{ Area of } \square ABCD$$



11. In the triangle PQR shown in the figure, mid point of the side PR is S and  $\hat{S}PQ = \hat{S}RQ$ . Copy the diagram on your answer sheet.

- Congruent the triangles PQS and SQR and show that  $QS \perp PR$ .
- When PR is produced to T, if  $\hat{P}QS = x$ , write the magnitude of  $\hat{Q}RT$  in terms of  $x$ . ( Give reasons)



12. (a)  $\varepsilon = \{ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 \}$

$$A = \{ 3, 6, 9 \}$$

$$B = \{ 2, 4, 6, 8, 10 \}$$

- Represent the above information on a Venn diagram.
- Find  $n(A' \cap B)$ .

(b) Number of cricket players in a certain sports club is 25. Number of football players are 28. Every member do at least one of the above sports. 8 do both sports mentioned above. There are no other sports in this sports club.

- Represent the above information on a Venn diagram.
- How many members are there in the sports club?
- How many members do not play football?