



ZONAL EDUCATION OFFICE - JAFFNA

Second term Examination - 2017

Grade - 10

Mathematics

Time - 3 hours

Part II A

(Answer any 5 questions)

01. A person who has obtained a loan for 3 years at 15% annual simple interest has paid Rs. 116 000 as total amount to released from loan.

- 1) Calculate the interest he had to pay for Rs. 100 for 3 years?
- 2) Find the amount of loan obtained by him?
- 3) What is the amount interest he has to pay for 3 years?

(10 marks)

02. An incomplete table of values prepared to draw the graph of the function $y = x^2 - 1$ is given below.

x	-3	-2	-1	0	1	2	3
y	8	3	0	0	3	8

a)

- 1) Complete the table
- 2) Draw the graph of the function $y = 2x^2 - 1$ by taking 10 small squares as one unit of x - axis and y -axis.

b) Using the graph

- 1) Write the equation of axis of symmetry?
- 2) What is the minimum value of the function?
- 3) Find the interval of values of x for which the function increases positively?

(10 marks)

03.

- 1) When a particular number is added to both the numerator and denominator of $\frac{5}{8}$, we get $\frac{7}{8}$. Find the particular number which was added.
- 2) The price of 2 pens and a pencil is Rs. 26 the price of a pen is Rs. 8 more than the price of a pencil. Taking the price of a pen is Rs x and the price of a pencil is Rs y .
- 3) Construct two simultaneous equations?
- 4) Find the price of a pen and a pencil by solving two equations.

(10 marks)

04.

- 1) Simplify $\frac{x+3}{x^2-1} - \frac{1}{x+1}$
- 2) A water tank of which length 4m, breadth. 3m and height 1.5m issued water in a howe hold.
 - a) Find the capacity of water tank.
 - b) Find the capacity of water tank in litre?
 - c) Find the time taken to filled with water completely by the pipe flow uniform speed of 300l per minute.

(10 marks)

05.

- 1) Find the value of
 $lg50 + lg60 + lg20 - lg6$
- 2) Solve
 $log_2 50 - log_2 4 = log_2 x - log_2 5$
- 3) If $lg2 = x, lg3 = y$, Write $lg12$ in x and y
- 4) Find the value by using logarithmic table.

$$\frac{4.875 \times 83.21}{5.74 \times 12.75}$$

(10 marks)

06.

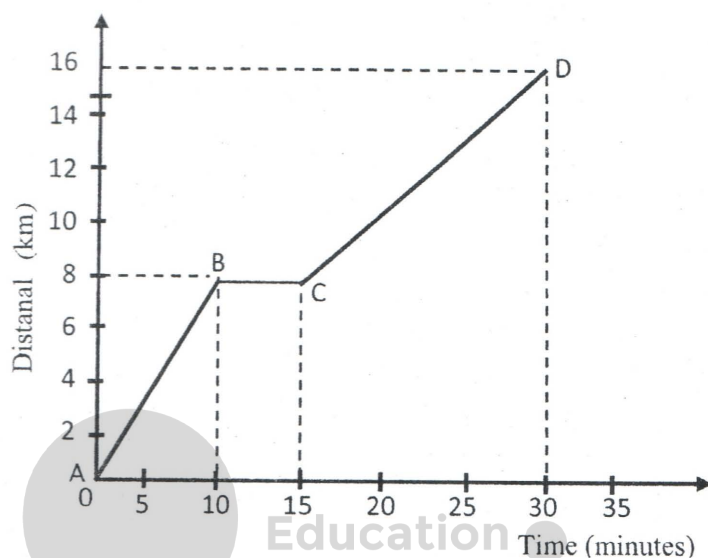
- 1) Expand and simplify $(2x - 5)(x + 3)$
- 2) Find the value by using the knowledge of factors $97^2 - 3^2$
- 3) If $x + y = 7, xy = 5$ find the value of $x^2 + y^2$
- 4) Find the solutions of the equation $x^2 - 5x - 6 = 0$

(10 marks)

Part - II B

07. Answer any 5 questions

A distance – time graph illustrating the motion of kumar who cycled to his friend's house and then returned back home after spending some time with his friend is given below.



Answer the following questions by using graph.

- 1) Calculate the distance between kumar's home and his friend's home?
- 2) How long did it take him to reach his friend's home?
- 3) Calculate his speed at which kumar cycled to his friend's home?
- 4) How much time kumar spent at friend's home?
- 5) Calculate the speed at which kumar returned home?
- 6) Calculate the total time taken by kumar?

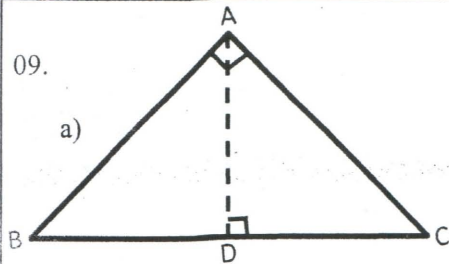
(10 marks)

08.

- 1) Construct a triangle ABC of which $AB = 8\text{cm}$, $\angle BAC = 60^\circ$ and $AC = 6\text{cm}$ by using pairs of compass and ruler.
- 2) Draw the perpendicular bisector of the side AB.
- 3) Construct the locus of a point moving with equidistance from the points B and C.
- 4) Mark the point of intersection of (ii) and (iii) drawn by you as O.
- 5) Construct the circle with centre O and radius OA.
- 6) Measure and write the radius of circle?

(10 marks)

09.



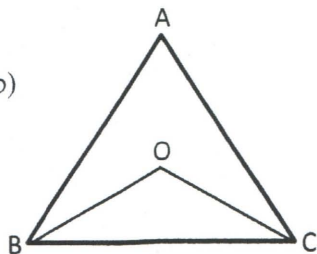
a)

In triangle ABC , $AC=40\text{cm}$, $\angle BAC = 90^\circ$ and $AD \perp BC$

- 1) If the area of the triangle ABC is 180cm^2 , Find the length of AB .
- 2) Find the length of BC .
- 3) Find the length of AD to the nearest whole number.

(7 marks)

b)



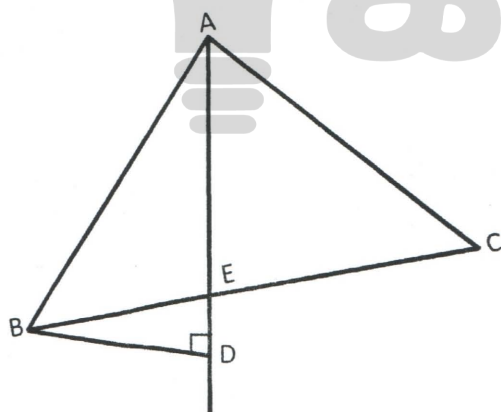
In triangle ABC , bisectors of the angles $\angle ABC$ and $\angle ACB$ meet at 'O' Consider $\angle ABC = 2x$, $\angle ACB = 2y$ and $\angle BAC = 36$.

Find

- 1) $2x + 2y$
- 2) $x + y$
- 3) the magnitude of $\angle BOC$

(3 marks)

10.

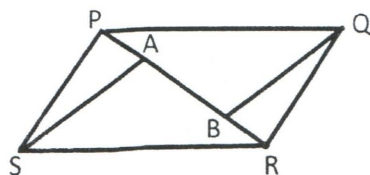


In the $\triangle ABC$, AE is the bisector of the angle $\angle BAC$ and BC is the bisector of the angle $\angle ABD$. Where $\angle ACB = 75^\circ$ by taking $\angle BAC = 2a$, and $\angle ABD = 2b$

- 1) Find the value of $2a + b$
- 2) Find the value of $2b + a$
- 3) Find the value of b .
- 4) Find the magnitude of $\angle AEC$

(10 marks)

11.



$PQRS$ is a parallelogram and $\angle PAS = \angle BQR$ prove that,

- 1) $\triangle PAS \equiv \triangle QBR$
- 2) $SA \parallel BQ$
- 3) $SAQB$ is a parallelogram

(10 marks)

12. The following frequency distribution gives the the runs obtained by mathan for a cricket match which played by him in a particular year.

No. of runs	Midvalue (x)	No. of competitions (frequency) (f)	Midvalue X frequency x
00 – 20	10	1	$10 \times 1 = 10$
20 – 40	3	
40 – 60	5	
60 – 80	11	
80 – 100	5	
100 – 120	4	
120 – 140	1	

- Find the total number of competitions of this cricket match played by him?
- Complete the giventable above?
- Find the mean value of runs obtained by mathan?
- If he played 40 competitions in that year, find the number of runs can obtained by mathan

(10 marks)

