Sri Jayawardhanapura Zone

Second Term Test - 2016

Grade 10 **Mathematics II** **Time: 3 hours**

Answer 10 questions only selecting 5 questions from part A and 5 questions from part B

Each question carries 10 marks.

Part A

Answer 5 questions only .

01.

The monthly income of Saman is Rs. 130,000. The first Rs. 500,000 of his income is tax free. For the next Rs. 500,000 a tax of 4% is charged while a tax of 8% is charged for the next Rs. 500,000. For the next Rs. 500,000 a tax 12% is charged.

i. What is the annual income of Saman?

ii. Find the tax paid by him for a year.

(a)

i. The quarterly assessment tax for a house is Rs. 800. Find the annual assessment tax.

ii. If the assessed value of this house is Rs. 80 000, Find the assessment tax rate charged by the municipal council.

02.

i. Complete the following table to draw the graph of $y = 2x^2 - 3$. Use a proper scale and draw the graph of $y = 2x^2 - 3$.

x	-3	-2	-1	0	1	2	3
y	15	5	.....	-3	.....	5	15

ii. Find the coordinates of the turning point of this graph.

iii. Find the range of x for which the graph increases negatively.

iv. Using the graph find the roots of the equation $3-2x^2 = 0$

v. Write the equation of the graph obtained by shifting this graph by 2 units upwards along the y axis.

03. Following tables represents date on 720 tickets issued for a particular musical show.

Value of a ticket (Rs)	Number of tickets
2000	180
1500	260
1000	280

i. Tickets of what value were sold the most?
ii. Represent the above date in a pie chart.
iii. What is the total income obtained by selling the tickets?
iv. The income obtained through the advertisements is Rs. 500,000 A man says that this amount is exactly half of the income obtained by selling tickets. Is this statement true or false. Give reasons.

04. The cost of 2 books and a pen is Rs. 100 and the cost of 3 books and 2 pens is Rs. 160 Hence find the cost of a parcel of 4 books and 3 pens.

05.

i. Write the squared expression of $(x+y)$ without calculate.
ii. Find the value of $2a^2-3ab$ when $a=3$ and $b=-2$
iii. If $t+\frac{1}{t}=3$ Find the value of $t^2+\frac{1}{t^2}$
iv. Factories $9a^2-(x-3a)^2$

06.

(a) A child observed that a bird flies in a constant speed by $5ms^{-1}$. Find the distance where the bird flies in 2 minutes.

(b) Followings are the measurement of a water tank.

Length = 4m, breadth = 2m and height = 1m

i. Calculate the volume of the tank.
ii. Find that volume in liters
iii. If this tank is filled by water flown in rate of $250l$ per minute, Find the time duration to fill half of this tank. .

Part B

Answer 5 questions only.

07.

i. Evaluate $3^2 \times 3^0$

ii. *Solve* $log_8 15 - log_8 x = log_8 3$

iii. Simplify the following expression using logarithmic table.

$$\frac{32.54 \times 2.05}{7.08 \times 6}$$

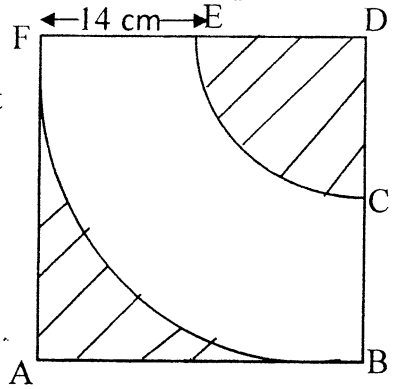
08. ABCD is a parallelogram. The point E lies on AB as AD = AE and the point F lies on DC as BC = CF. Prove that EBFD is a parallelogram.

09. A square shaped piece of cloth of a side length 28cm is shown in the diagram.

i. What is the radius of the sector EDC?

ii. If the shaded part has been removed, find the perimeter of the remaining part.

iii. A piece of lace is to be sewed around the remaining part of the cloth. The price of one meter of lace is Rs. 500. Find the cost of the total length of lace being used to decorate the cloth.



10. In the ABCD quadrilateral AB = AC, AD = DC and $B\hat{A}C = 80^0$.

i. Draw a rough diagram and mark all the given data on it. .

ii. Find the magnitude of $A\hat{B}C$

iii. Name two isosceles triangles in this diagram

iv. If DC is perpendicular to CB, Find the magnitude of $A\hat{D}C$.

11. There are 45 students in the grade 10 section of a certain school. 35 students out of them study literature. There are 5 students who has got less than 40 marks. Number of students who do not study literature below 40 marks is 6.

i. Find the number of students who study literature and got less than 40 marks.

ii. Find the number of students who do not study literature and got less than 40 marks.

12.

In an isosceles triangle ABC, AC = BC. The angle bisectors of $B\hat{A}C$, $C\hat{B}A$ and $A\hat{C}B$ meet at O.

i. Mark the given data in a rough diagram

ii. Prove that AOC $\Delta \equiv BOC\Delta$.

iii. Prove that OAB is an isosceles triangle

iv. The extended line CO meets AB at X. Show that $X\hat{A}C + A\hat{C}X = 90^0$.

(Consider A X = XB)