Sri Jayawardanapura Educational Zone

Second Term Test – 2014

Mathematics – I

Grade 11 **Time : 2hrs**

Name -

Part A

Answer all the questions in the paper itself.

1) If the price of 1kg of rice is Rs.60 find the price of 5kg of rice.

2) Evaluate $2 + x = 6$

3) Simplify $3^2 \times 3^4$

4) Find the length of a side of an equilateral triangle with a perimeter of 24cm.

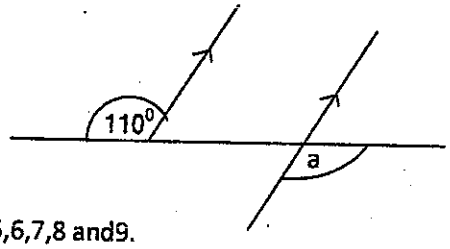
5) Find the value of $\frac{2}{7} + \frac{3}{7}$

6) Express 5060kg in grams.

7) Simplify $0.1 + 1.11$

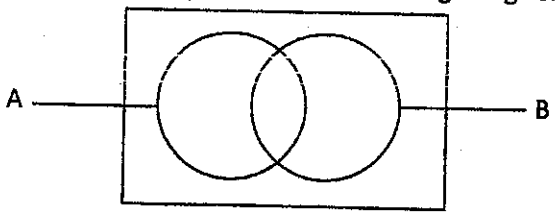
8) If A = { 2,4,6,8,10 }, find n(A)

9) Find the value of "a" in the diagram.



10) Find the median of the set of values 2,3,4,4,5,6,7,8 and9.

11) Shade the region $A' \cap B$ in the Venn diagram given.

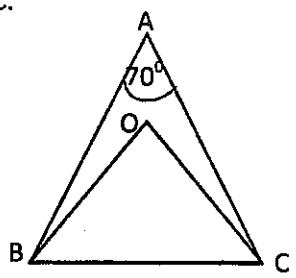


12) Anura is travelling at a speed of 60kmh^{-1}. It takes 2½ hrs to travel from A to B. On his return journey if he travels at a speed 50kmh^{-1}, find the time taken to travel from B to A.

13) Simplify $1101_{two} + 111_{two}$

14) Sunimal invests Rs.84600 to buy Rs.10 shares at Rs.9. Find the nominal value of the shares he bought.

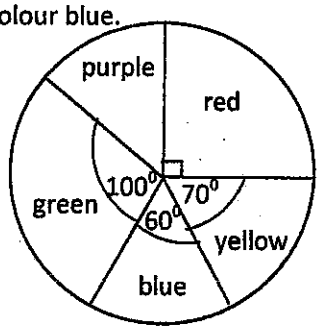
15) In the ABC triangle, AB=AC. The bisector of $A\hat{B}C$ and $A\hat{C}B$ intersect at '0'. If $B\hat{A}C = 70^0$ find the value of $B\hat{O}C$.



16) Change the subject to "a".

ma - t = na + 5

17) The following pie chart represents data on the colours, that a certain group of children prefer. If the number of students who like red colour is 24, find the number of students who like the colour blue.



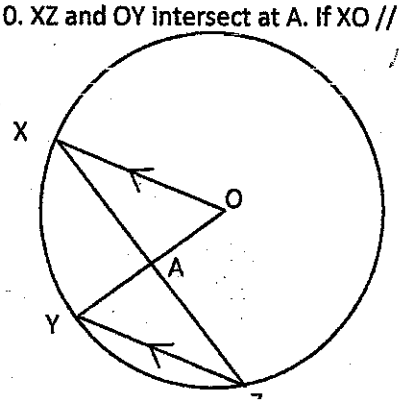
18) If $\sin A = \frac{4}{5}$ find the value of $\cos A$.

19) The exterior angle of a regular polygon is 45^0. Find the sum of the interior angles of this polygon.

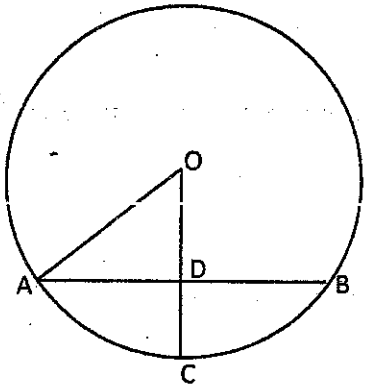
20) X,Y and Z are three points on the circumference of a circle with centre 0. XZ and OY intersect at A. If XO // YZ and $X\hat{Z}Y = m^0$ find the value of the following, in terms of m.

I. $X\hat{O}Y$

II. $X\hat{A}Y$



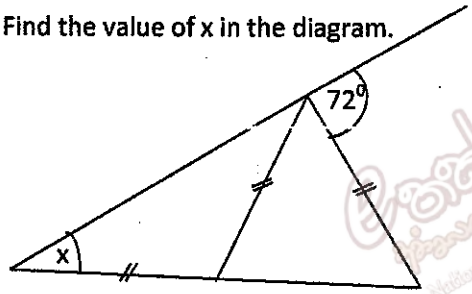
21) In the circle with centre O, OC is drawn perpendicular to the chord AB. If AB = 12cm and DC = 2cm find the value of AO.



22) If $a+b = 3$ and $ab = 2$ find the value of $a^2 + b^2$

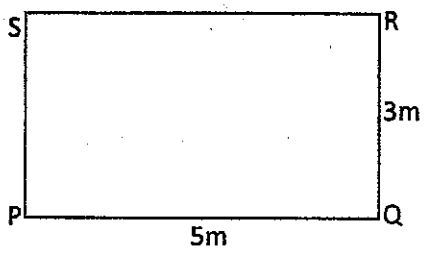
23) Find the equation of the straight line, which goes through the point (0,3) and is parallel to the line $y = 2x - 5$.

24) Find the value of x in the diagram.

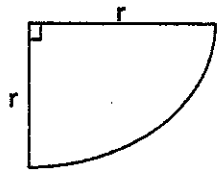


25) Find the arithmetic mean and the geometric mean of the two numbers 4 and 36 .

26) PQRS is a rectangular flower bed of which the length is 5 m and breadth is 3m. A water fountain is to be set such that , it is equidistant to PQ and QR borders and 4m away from the corner S.
By using the knowledge on loci mark the point at which the fountain should be set.



27) If the radius of the base of the hollow cone, made out of the given sector is 3.5cm find the value of r.



28) Change $\frac{2}{\sqrt{3}}$ into a fraction with a rational denominator.

29) Find the quadratic equation of which the solutions are x = 2 and x = -3

30) If $a^3 + b^3 = c^2$ and $a < b < c$, find the values of a, b and c as positive integers.

Part B

Answer all the questions in the paper itself.

1) Sumith has obtained a certain amount by selling a piece of land and he expects to spend it as follows.

- To deposit $\frac{1}{3}$ of the amount as a fixed deposit in a bank.
- To buy another piece of land using $\frac{3}{4}$ of the remaining amount.
- To invest the remaining Rs.400, 000 in the stock exchange.

I. What part is left after depositing in the fixed deposit?

II. What fraction of the total amount is spent on buying the piece of land?

III. Express the amount invested in the stock market as a fraction of the total amount.

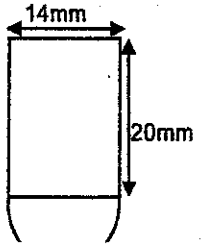
IV. What is the total amount obtained by Sumith, in selling the land.

V. If the bank pays 12% annual interest on fixed deposits, find the interest Sumith receives after a year for his deposit.

2) The following diagram is of a badge designed by combining a rectangular and a semi circular metal piece by a group of students.

I. What is the height of the badge?

II. Find the perimeter of the badge.



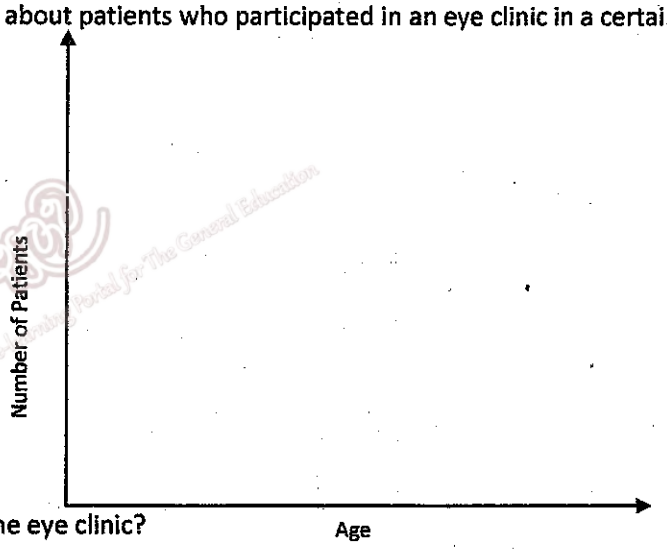
III. What is the area of the front surface of the badge?

IV. The team leader says that the badge should be redesigned by removing the semi circular part and combining a piece of an isosceles triangle without changing it's height. Draw the triangular part with the relevant measurements.

V. Calculate the area of the triangular part.

3) The following table presents information about patients who participated in an eye clinic in a certain village.

Class interval (age of patients)	Frequency (number of patients)
0 - 10	05
10 - 20	15
20 - 30	12
30 - 40	08
40 - 50	15
50 - 60	11
60 - 80	14



I. How many patients did come for the eye clinic?

II. Find the ratio between the patients who are 20 years old or less than that and patients who are more than 20 years old and express it in the simplest form.

III. Draw a histogram to represent the above data.

IV. By using the histogram, construct the frequency polygon.

4) Kamal spends Rs. 45,000 to buy Rs. 10 shares at Rs.12 each, of a company which pays dividends of 8%

I. Find the number of shares he buys .

II. Calculate the nominal value of the shares he buys .

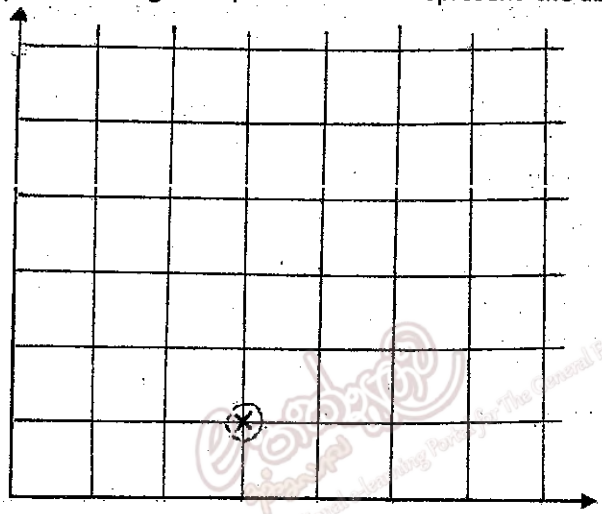
III. Calculate his annual income.

IV. Express the income as a percentage of the investment .

V. Kamal's friend Amal says that rather than investing the money, it will be profitable to deposit it in a bank which pays 7% annual interest on deposits. Do you agree with this? Give reasons for your answer.

5) An unbiased cubic dice numbered from 1 to 6 and an unbiased tetrahedral dice numbered from 1 to 4 are tossed together onto a table.

I. By considering the possible results represent the above experiment on the grid .



II. If the event of the values obtained being equal is A, find P (A)

III. If the probability of the ~~total~~ sum of the values obtained being ~~less~~ greater than 5 is P(B), find P(B)

IV. Find P (A U B)

V. Explain the event marked on the grid.