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மாகாணக் கல்வித் திணைக்களம் - வட மாகாணம்
Provincial Department of Education - Northern Province

Provincial Level Year End General Exam - 2013

Grade - 11	Mathematics - I	2 hours

Index Number :- ....

....
Supervisor Signature

Note :-

♦ This question paper has 8 pages.

♦ Write the index number in this page and the 3rd page also.

♦ Answer all questions in this paper

♦ Use the spaces given under each question and state clearly the needed steps

♦ One mark for the questions no 1 to 10 and two marks for the questions no 11 to 30 in part A

♦ 10 marks for the correct answers of every questions in part B.

FOR USE OF MARKER		
	Question No	Marks
A	1 - 10	
	11 - 30	
B	1	
	2	
	3	
	4	
	5	
Total		

....
Marker

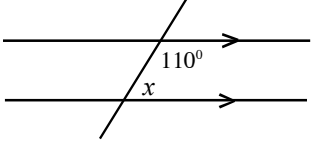...
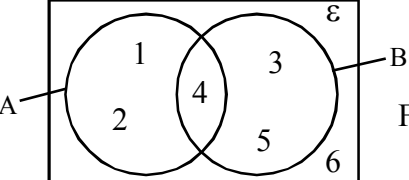Checker

Part A

♦ **Answer all question on this paper.**

01) Cost of one litre milk is Rs 40. Find the cost of 250ml milk
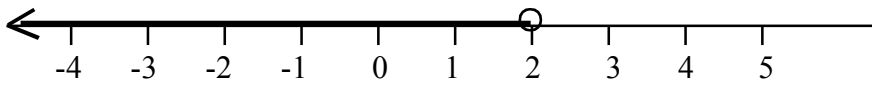
02) Solve $x - 2 = 5$

03)

 Find the value of x.

04)

 Find n (A) using Venn diagram.

05) 1, 2, 2, 3, x, 3, 4, 5 Mode of the above distribution is 3. Find x

06) $\begin{pmatrix} 2 & 3 \\ 3 & 5 \\ -1 & 4 \end{pmatrix}$ Find the order of matrix.
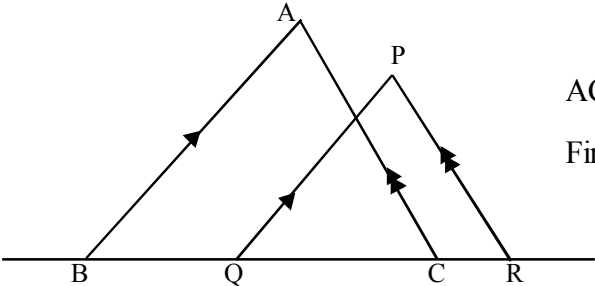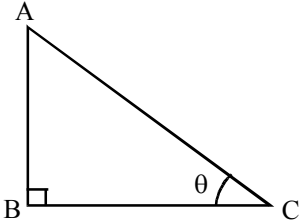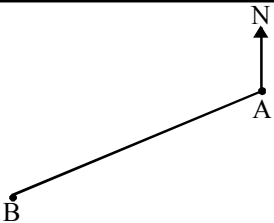
07) Factorize $x^2 - x$

08) If the probability of a match stick gets fire is $\frac{3}{4}$ Find the probability of a match stick not gets fire.

09)

write the inequality represented by number line.

10) $x : 3 = 24 : 18$ Find x.

11) Simplify $\dfrac{3}{x-3} - \dfrac{2}{3-x}$

| 12)	Rs 1600 is the tax for quater year of the shop. Which pays. 8% tax to the Urban council. a) Find the tax for a year. b) Find the annul value of the shop.
13)	Solve $2 \lg x + \lg 8 = 5 \lg 2$ without using log table.
14)	A D —→ E B —→ C D and E are the midpoints of AB and AC of an equilateral triangle ABC with length 6cm. Find the perimeter of trapezium DECB.
15)	4 men can finish a certain work in 3 days. How many days are needed for 9 men to finish the three time the work.
16)	From the function $y = (x - 2)^2 - 3$ a) Find the equation of axis of symmetry b) Find the minimum value.
17)	ABT is tangent of a circle with centre O. $C \hat{B} T = 40^0$ Find the value of x and y. D x O — C y A B T
18)	Make r as the subject in $E = \dfrac{r}{r - 1}$

|	
19)	An interior angle of a regular polygon is 150^0. Find the number of sides of the polygon.
20)	A person invested Rs 6000 to buy Rs 10 shares at Rs 15. a) Find the number of shares he bought. b) Find the nominal value of shares.
21)	Which term is zero in the number pattern 60, 57, 54, 51.............
22)	AC = 10cm, BC = 6cm and PR = 8cm in the diagram. Find QR.
23)	$x^2 + \dfrac{1}{x^2} = 23$ Find $x + \dfrac{1}{x}$
24)	If $\tan\theta = \dfrac{1}{2}$ Find $\sin\theta$
25)	If the bearing of B from A is 187^0 Find the bearing of A from B.

26) Simplify.

$$4\frac{1}{3} \div \left(3\frac{1}{3} - 2\frac{1}{4}\right)$$

27)
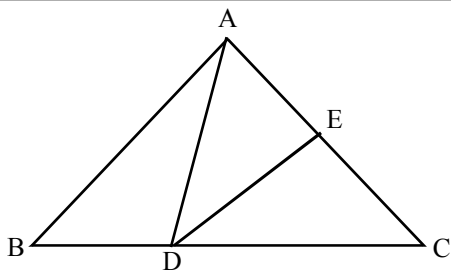
In the diagram CD = 3BD

AE : EC = 2 : 3
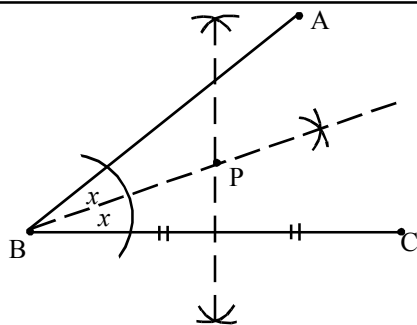
If the area of △ ABC is 60cm²

Find the area of △ AED

28)
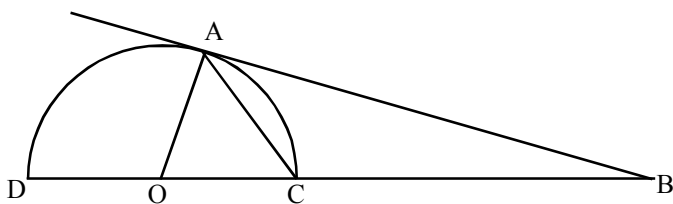
O is the mid point DC in the given half circle.

AB is the tangent AB = 8cm, radius of the circle is 6cm.

Find the length of BC.

29)

Fill in the blanks according to diagram.

The point P is located, equidistant from the lines .... and ...., equidistant from the points .... and ....

30) (If lg 2 = 0.3010)

Find the value of lg 0.02.

01) A fruit seller reserved $\frac{3}{8}$ part of fruits for his own needs. $\frac{1}{10}$ of the remainder was spoiled. $\frac{2}{3}$ part of the remaing fruits are small size. remaining fruits are large size. If he sells the large sizes fruits at Rs 40 each and grained Rs 1200.

a) Find the fraction of fruits after reserving for his own needs?

b) What is the fraction of spoiled fruits in whole fruits?

c) Write the fraction of small fruits in whole fruits?

d) How many fruits are there in large size?

e) What is the fraction of large size fruits in whole part.

f) Find the total number of fruits he bought.

02)
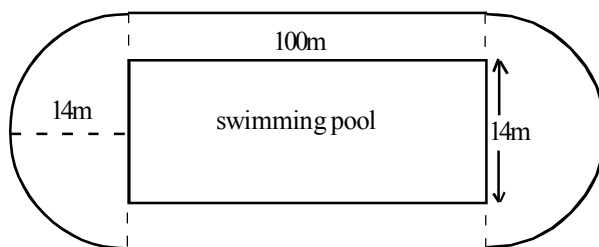
A swimming pool with length 100m and breadth 14m is in the playground. grass was laid in the remaing area of the ground.

a) Find the area of the swimming pool.

b) What is the area of a semicircular part.

c) Find the area of the ground.

d) Find the area of the part where the grass was laid

e) Depth of the swimming pool is 2.5m. Find the volume of the water .

03) Ravi, Raja and kamal decided to start a bussiness. Ravi and Rajah invested Rs 40,000 and Rs 60,000 respectively at the start of the year. after 4 months Kamal invested Rs 75,000 and joined the bussiness. Rs 84,000 gained as the profit end of the year.

a) Find the ratio of investments.

b) Find the ratio of period of time.

c) Find the ratio the profit should be divided.

d) Rs 24,000 was paid as the rent from the profit. Find the profit gained by Ravi.

04)
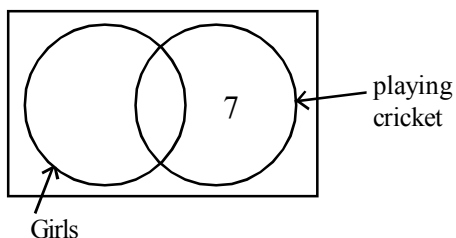
In a mixed school, there are 25 students. 13 of them girls 16 students can play cricket.

a) Draw the Venn diagram in your answer sheet, shade the region represent the boys who play cricket.

b) How many girls didn't play cricket.

c) How many boys are there in the school.

d) Find the probability of a student who can't play cricket.

e) find the percentage of girls who play cricket of the students who play cricket.

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05) The following charts represent the marks of 35 students.

Class Interval (Marks)	0 - 10	10 - 20	20 - 40	40 - 50	50 - 80
Number of students (frequency)	4	6	....	5	12

a) Find the frequency of students who got the marks in the class interval 20 -40.

b) Express the fraction of student who got marks below 20.

c) Draw the histogram for the above data.

d) Draw the frequency polygon

e) What is the relation between the area of histogram formed with x axis and area of the frequency polygon formed with x axis.

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Provincial Department of Education - Northern Province

Provincial Level Year End General Exam - 2013

Grade - 11   **Mathematics - II**   **2 .30 hours**

- ◆ **Answer the five questions from Part A and five questions from Part B altogether ten questions.**
- ◆ **10 Marks for correct answers of each questions**
- ◆ **Volume of a cylinder is $\pi r^2 h$ radius of the base is r and the hight of the cylinder is h.**
- ◆ **Volume of a cone is $\frac{1}{3}\pi r^2 h$ radius of the base is r and the hight of the cone is h.**

Part A

- ◆ **Answer only five questions.**

01) A washing machine worth Rs 50 000 can be bought 10% of value pays initially and the remaing amount 9 equal monthly installment at the rate 24%.

   a) What is the amount should be paid initially.

   b) Find the remaining balance.

   c) How much should be paid monthly with out interest.

   d) Find the interest for a monthly unit.

   e) Find the monthly units

   f) Find the total interest.

   g) How much is the monthly installment.

02) An uncompleted chart is given to draw the graph y = (x -1)² - 2.

x	-2	-1	0	1	2	3	4
y	7	2	-1	-2	____	2	7

   a) i)   Find the value of y when x = 2

       ii) Draw the graph for suitable scale.

   b) Write the answers for the following using the graph.

       i)   Minimum value

       ii) Write the equation of axis of symmetry

       iii) Find the rang of value of x, when function increasing (-2) to 7.

       iv) Solution of x² - 2x - 1 = 0

       v)   Write the function, If the axis of symmetry x =-1 and maximum value 2

03) a) Cost of 3 apples and 2 oranges is Rs 170. Cost of 4 apples is equal to cost of 3 oranges. Cost of 4 apples is equal to cost of 2 pine apples.

  i) Take cost of an apple as x and cost of an orange as y. Form two suitable simultaneous equation.
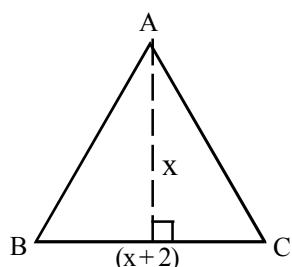
  ii) Find x and y.

  iii) Find the cost of a pine apple.

 b) Factorize $x^2 - 4 - x - 2$

04)

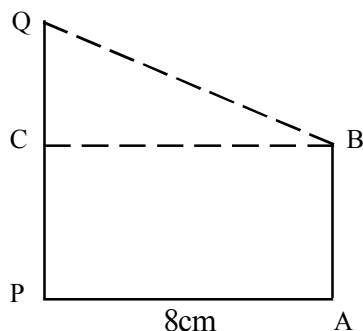 a) Solve. $\dfrac{x+3}{3} + \dfrac{x+2}{6} = \dfrac{7}{3}$

 b)

In the diagram

  i) Find the area of $\triangle$ ABC interms of x.

  ii) If the area of $\triangle$ ABC is 5 square units show that $x^2 + 2x - 10 = 0$.

 c) Find the value of x in $x^2 + 2x - 10 = 0$ using completing square or another method
   (take $\sqrt{11} = 3.31$)

05)

The distance between two walls AB and PQ is 8m.

Angle of elevation of Q from B 30^0. Angle of depression of P from B is $50^0 \, 10^1$.

 a) Represent the above data in a diagram
   Using the trigonometrical ratios.
   i) Find the length of AB
   ii) Find the length of PQ

 b) A, B and C are three points in a play ground. point B is situated 50m away from A and the bearing of 070^0, C is located 70m away from B and the bearing of 150^0.
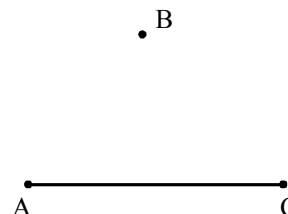
   i) Represent the data in a rough diagram.
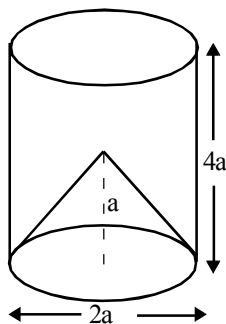   ii) Draw the scale diagram in the scale 1 : 1000
   iii) From the scale diagram.
     a) Find the bearing of B from C.
     b) Real distance between A and C.

06) a)

diameter of the base 2a and height 4a of a cylindar in the diagram. a cone with diameter 2a and the height a is curved out from the cylindar.
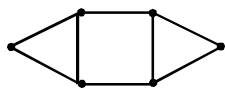
i) Express the volume of cylindar interms of π and a.
ii) Express the volume of cone interms of π and a.

iii) Show that, the volume of remaining solid is $\dfrac{11\pi a^3}{3}$.

b) Find the value $\dfrac{0.835 \times \sqrt{64.36}}{(2.83)^2}$ to the nearest 2nd decimal using the log table.
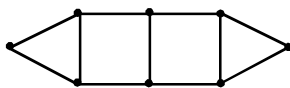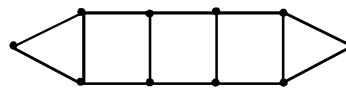
Part II B

♦ **Answer only five questions.**

07)

| (i) | (ii) | (iii) |

a) above patterns was formed by a student using match stick.
   i) How many more match sticks in 2nd pattern than the first pattern.
   ii) How many match sticks are needed to from 8th pattern.
   iii) How many match sticks are needed to from 15 patterns.

b) first term is 3 and 6th term of a geometric progression is (-96). Find the common ratio.

08) Construct the following using only cm / mm scale and a pair of compasses.
   i) Construct $\triangle ABC$, where AB = 8cm, $B\hat{A}C = 90^0$, AC = 6cm.
   ii) Find the length of BC.
   iii) Constuct the circle which touches AC at C and passes through B. Measure and write the radius
   iv) Construct a tanget (except AC), name the point of contact as P.
   v) write the relation between AP and AC.

09) The following chat represent the weight of suger sold in a shop for 30 days.

| Weight (kg)	0 - 4	4 - 8	8 - 12	12 - 16	16 - 20	20 - 24	24 - 28
days (frequency)	3	4	5	8	5	3	2

   i) Find the modal class.
   ii) Find the mean weight of suger, take the mid value of the modal class as the assumed mean.
   iii) cost of 1kg suger is Rs 90. Find the total money received in 30 days.
   iv) How much suger will be needed to sell the suger in 10 days.

10) A driving licence is issued a person pass in a written exam and the practical exam. Written exam is conducted first.

a) ★ Number of Applications - 15
   ★ Number of applicant who didn't pass written exam - 3
   ★ Number of applicant who pass in practical exam - 4

   Practical Exam (P)   →   ←   Written Exam (W)
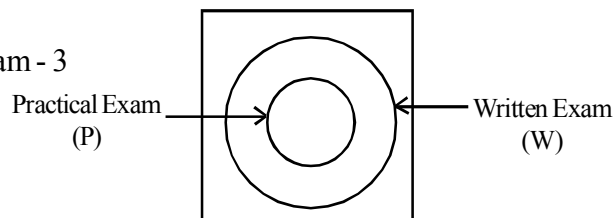
   i) Represent the data on a Venn diagram.
   ii) Write the relations of set P and set W in set notation.
   iii) Find the percentage of applicant who passed in writting exam.

b) Complete the tree diagram using above data

   i)
   Written Exam —— x —— Pass   Find x and y.
                 —— y —— Fail
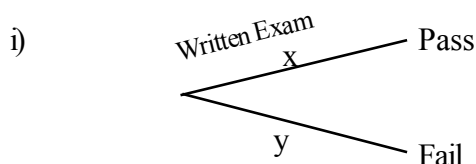
   ii) Extend the tree diagram results of practical Exam.
   iii) Find the probability of an applicant who get driving licence.

11)
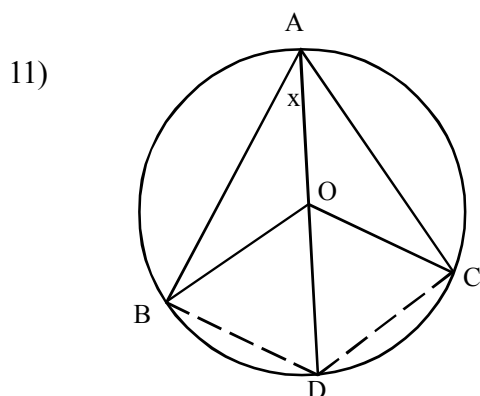
In the diagram AB = AC, centre of circle is O.

   i) Write two isoceles triangles
   ii) Show that $\triangle ABO \equiv \triangle ACO$
   iii) If $B\hat{A}O = x$ Find $B\hat{O}C$ interms of x.
   iv) Name an equal angle of $D\hat{C}B$. Write the theorem, Used to find the angle.
   v) Show that BD = DC.

12) a) State the midpoint theorem.
    b) E and F and mid points of AB and AC in the triangle ABC. BF and CE are intresect at O. Extended AO meets BC at D and the line drawn parallel to EC through the point B at M. copy down the diagram in your answer script. Prove the following.

   i) AO = OM
   ii) MC // BF
   iii) BMCO is a parallelogram.
   iv) 2AD = 3AO