



32 E II

மாகாணக் கல்வித் திணைக்களம் - வட மாகாணம்
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%.
- What is the amount should be paid initially.
 - Find the remaining balance.
 - How much should be paid monthly with out interest.
 - Find the interest for a monthly unit.
 - Find the monthly units
 - Find the total interest.
 - 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

- Find the value of y when $x = 2$
 - Draw the graph for suitable scale.
- b) Write the answers for the following using the graph.
- Minimum value
 - Write the equation of axis of symmetry
 - Find the rang of value of x, when function increasing (-2) to 7.
 - Solution of $x^2 - 2x - 1 = 0$
 - 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 equations.

ii) Find x and y .

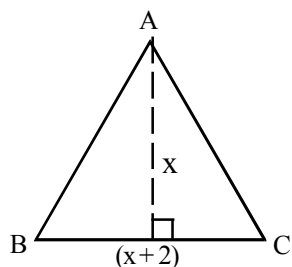
iii) Find the cost of a pine apple.

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

04)

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

b)



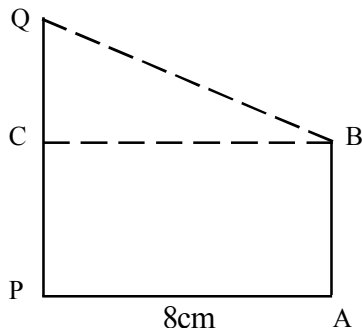
In the diagram

i) Find the area of $\triangle ABC$ in terms 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 is 30° . Angle of depression of P from B is $50^\circ 10'$.

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 playground. point B is situated 50m away from A and the bearing of 070° , C is located 70m away from B and the bearing of 150° .

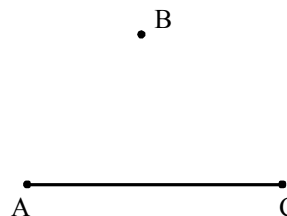
i) Represent the data in a rough diagram.

ii) Draw the scale diagram in the scale 1 : 1000

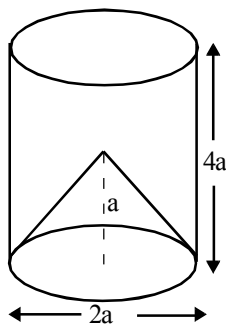
iii) From the scale diagram.

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 cylinder in the diagram. a

cone with diameter $2a$ and the height a is curved out from the cylinder.

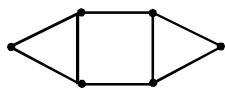
- Express the volume of cylinder in terms of π and a .
- Express the volume of cone in terms of π and a .
- Show that, the volume of remaining solid is $\frac{11\pi a^3}{3}$.

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

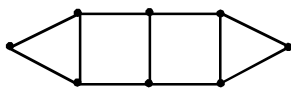
Part II B

◆ Answer only five questions.

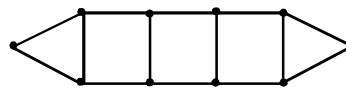
07)



(i)



(ii)



(iii)

a) above patterns were formed by a student using match sticks.

- How many more match sticks in 2nd pattern than the first pattern.
- How many match sticks are needed to form 8th pattern.
- How many match sticks are needed to form 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.

- Construct $\triangle ABC$, where $AB = 8\text{cm}$, $\angle BAC = 90^\circ$, $AC = 6\text{cm}$.
- Find the length of BC .
- Construct the circle which touches AC at C and passes through B . Measure and write the radius.
- Construct a tangent (except AC), name the point of contact as P .
- Write the relation between AP and AC .

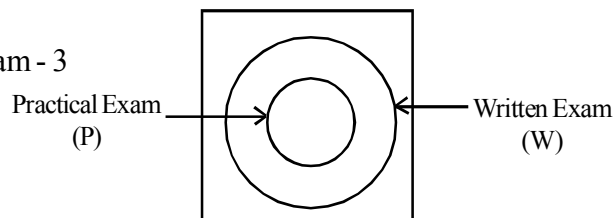
09) The following chart represents the weight of sugar sold in a shop for 30 days.

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

- Find the modal class.
- Find the mean weight of sugar, take the mid value of the modal class as the assumed mean.
- Cost of 1 kg sugar is Rs 90. Find the total money received in 30 days.
- How much sugar will be needed to sell the sugar in 10 days.

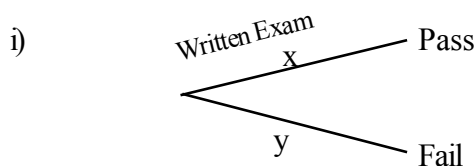
- 10) A driving licence is issued a person pass in a written exam and the practical exam.
Written exam is conducted first.

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



- 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 writing exam.

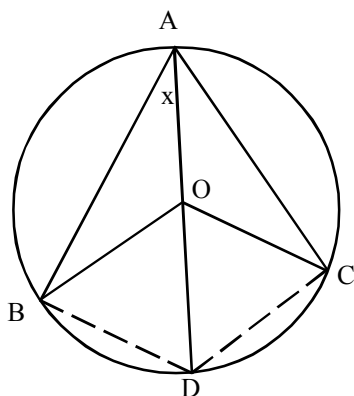
- b) Complete the tree diagram using above data



Find x and y.

- 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 isosceles triangles
ii) Show that $\triangle ABO \cong \triangle ACO$
iii) If $\angle BAO = x$ Find $\angle BOC$ in terms of x.
iv) Name an equal angle of $\angle DCB$. Write the theorem, Used to find the angle.
v) Show that $BD = DC$.

- 12) a) State the midpoint theorem.

- b) E and F are mid points of AB and AC in the triangle ABC. BF and CE intersect 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) $MC \parallel BF$
iii) BMCO is a parallelogram.
iv) $2AD = 3AO$

