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%.

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 $x^2 - 2x - 1 = 0$
   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.

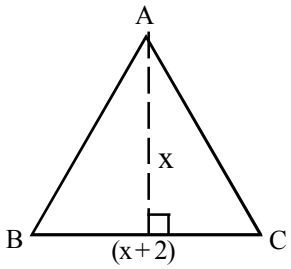
iii) Find the cost of a pine apple.

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

04)

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

b)



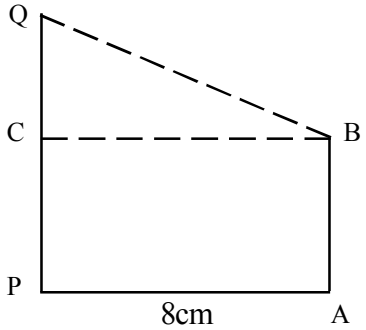
In the diagram

i) Find the area of Δ ABC interms of x.

ii) If the area of Δ 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)



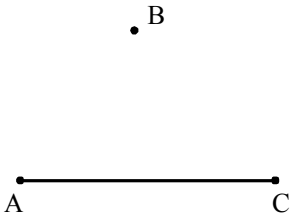
The distance between two walls AB and PQ is 8m.

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

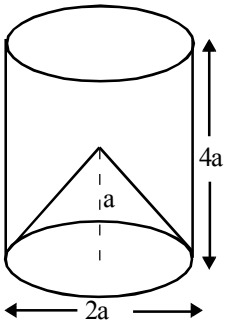
a) Represent the above data in a diagram
Using the trigonometrical ratios.
i) Find the length of AB
ii) Find the length of PQ

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.

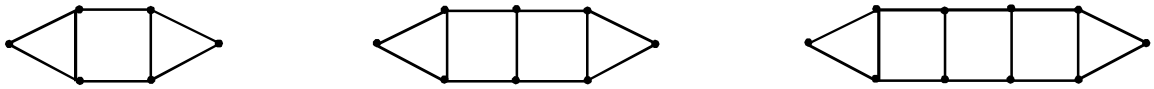
iii) Show that, the volume of remaining solid is $\frac{11\pi a^3}{3}$.

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 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 Δ 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.

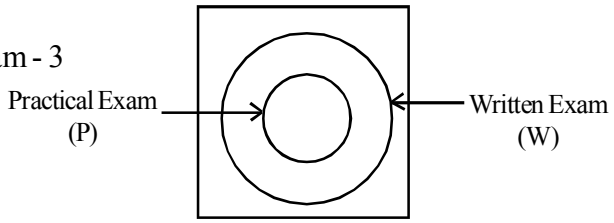
09) The following chat represent the weight of suger sold in a shop for 30 days.

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.

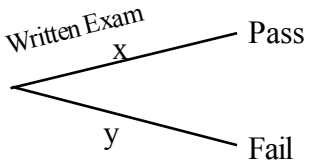
a) ★ Number of Applications - 15
★ Number of applicant who didn't pass written exam - 3
★ Number of applicant who pass in practical exam - 4



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

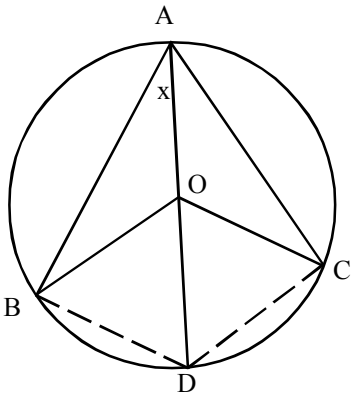
i)



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 isoceles triangles
ii) Show that $\Delta ABO \equiv \Delta ACO$
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