PART - A

Answer all the questions on this paper itself

1.	Find the value of (-8) + (+5).

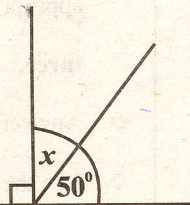| 2.	Find the price of 1kg of sugar, if the price of 250g of sugar is Rs. 26.00.

3.	Write x^{-3} with positive indices.

4.	Solve $a + 3 = 5$.

5.	Simplify $\frac{5}{7} - \frac{3}{7}$.

6.	What is the value of $\sqrt{2.25}$, if $\sqrt{225} = 15$.

7.	Find x.

8.	Write 0.75 as a percentage.

9.	What is the number represented by the tally mark ⦀ ⦀ ⦀	

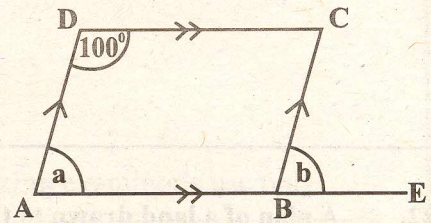| 10.	What is the value of $n(A)$, if A = {the letters of the word "NAVINNA"}.

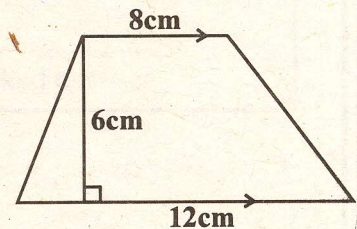|	
11.	Expand $(x + 3)^2$.
12.	Evaluate. 12.5×0.06
13.	Make u as the subject of the formulae $v^2 = u^2 + 2as$.
14.	In the parallelogram ABCD, the side AB is produced up to E. Find the values of a and b, if $A\hat{D}C = 100^0$.
15.	(i) Write 81 as a power of 3. (ii) Find the value of $log_3\ 81$.
16.	Find the value of $x^2 + 2y$, if $x = -2$ and $y = 3$.
17.	Find the area of this figure.

18. Underline the fractions which are recurring decimals.

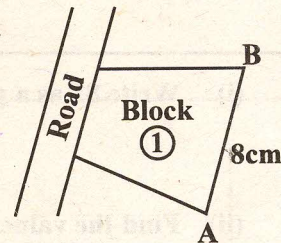$$\frac{3}{4} \ , \ \frac{2}{3} \ , \ \frac{1}{8} \ , \ \frac{5}{11} \ , \ \frac{3}{6}$$

19. Find the L. C. M. of $x^2 - 9$ and $(x + 1)(x - 3)$.

20. Simplify $\frac{x}{3} - \frac{x}{5}$.

21. Find the magnitudes of a and b according to the data given in the diagram.
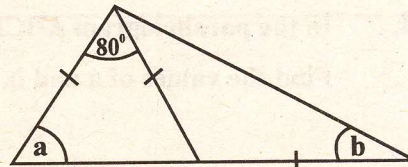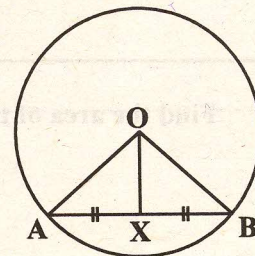

22. A plan of a land drawn to the scale 1:500 is given in the figure. If the length of the boundary AB is 8cm, find its actual length.

23. Write the gradient and the intercept of the straight line $2y = 3x - 6$.

24. Calculate the length of the chord AB of the circle with the centre O, if the radius 10cm and OX = 6cm.

25. Three men could complete only $\frac{1}{3}$ of a work in 4 days. How many days will it take by 8 men to complete the remaining part of the work.

26. Factorize $x^2 + ax + bx + ab$.

27. How many values are more than the mean value of the distribution 5, 3, 0, 8, 4, 10.

28. The instalment for a life insurance policy of a 40 year old person for Rs 1000 for a period of 15 years is Rs. 120. What is the amount to be paid for one year, if he insured for Rs 50000.

29. A and B are two fixed points and C is a point moving such that $A\hat{C}B = 90^0$. Construct the locus of C.
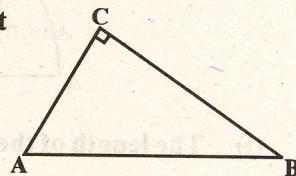
30. Around a square shaped land concrete posts are fixed with a gap of 5m. Find the perimeter of the land, if the number of posts that can be seen from one side is 6.

PART - B

Answer all the questions on this paper it self

1. **(a)** Simplify $2\frac{1}{3} + 1\frac{1}{4} \times \frac{2}{5}$.

   (b) A train of 50m in length passes a bridge of 70m in length with a speed of 36kmh^{-1}.

   (i) What is the distance travels by the train in one hour.

   (ii) What is the distance that the train travels in one second.

   (iii) Find the time taken by the train to pass the bridge.

(02) A landscaped piece of land is given in the figure. Grass is grown in the rectangular portion and flowers are grown in the circular sectors.
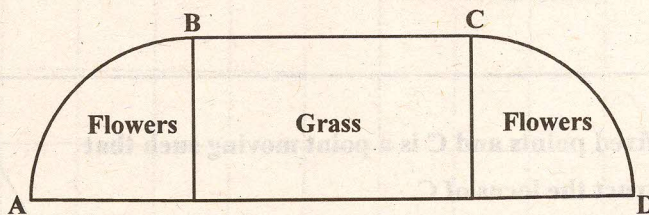
   (i) The length of the rectangular portion is 28m and the breadth is half of the length. What is the radius of the circular sector?

   (ii) Find the length of the arc AB.

   (iii) Find the perimeter of whole land.

   (iv) Find the area of the portions that flowers are grown.

(03) (a) (i) Include following data in the Venn diagram.

$$\mathcal{E} = \{1,2,3,4,5,6,7,8,9,10\}$$
$$A = \{2,3,5,7\}$$
$$B = \{2\}$$

(ii) Write the elements of following sets using the Venn diagram.
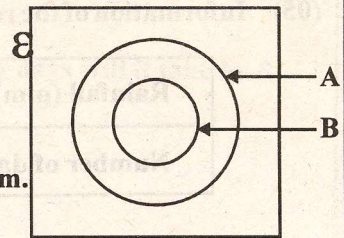
- $A \cap B$ =
  $A \cup B$ =

(iii) Shade the area of $A \cap B'$ (Do not shade the numbers)

(b) In a certain school there are 45 students in grade 10 and 30 out of them are girls. 22 students come to school by school buses and 12 out of them are girls.

(i) Represents above data in a Venn diagram.

(ii) Find the number of boys who do not come by school buses, using the Venn diagram.

(04) (a) A student mixes volumes of red and white ink in the ratio 1 : 2 and white and blue ink in the ratio 3 : 1 to prepare an ink mixture.

(i) Find the ratio between three types of ink in the mixture.

(ii) Find the volume of red ink, if the volume of blue ink is 100*ml*.

(b) (i) Convert 1100_{two} to the base ten.

(ii) Express 28 in the base two.

(iii) Simplify. $1101_{two} + 110_{two} - 1001_{two}$

(05) Information of the rainfall within one month in a certain area is given in the following table.

Rainfall (mm)	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45
Number of days	3	5	9	6	3	2

(i) Find the number of days that the information has collected.

(ii) What is the reported value that can be consider as the highest rainfall?

(iii) Find the range of values of rainfall within that month.

(iv) If the data has been collected on each day of the above month, which month is it?

(v) Represent the above data in a histogram.

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Department of Education - Western Province

Year End Evaluation - 2013

Grade - 10

32	E	II

Mathematics II		Time - 02 hours and 30 minute

* Answer 10 questions selecting 5 questions from part A and 5 questions from part B.
* Each question carries 10 marks.
* The area of a cylinder of radius r and height h is $2\pi rh$ and the volume of it is $\pi r^2 h$.

Part A
Answer five questions only

1. (a) The annual value of a shop situated in a local government administrative area is assessed as Rs. 250 000. The owner of the shop has rented out it charging Rs. 20 000 per month.

    (i) What is the total income receives for 1 year by renting out the shop?

    (ii) Find the amount to be paid for a quarter, if an annual tax of 8% is charged by the local government.

    (iii) Rs. 40000 should be allocated for the annual repair of the shop. What is the net profit he obtains from the shop.

    (b) A trader received an income of Rs. 1500 by selling 80 oranges which has been baught each per Rs. 15. Calculate the percentage of profit / loss he obtained.

2. An incomplete table prepared to draw the graph of the function $y = 4 - x^2$ is given below.

x	- 3	- 2	-1	0	1	2	3
y	-5	0	......	4	......	0	-5

    (a) (i) Copy this table on to your answer script and fill the blanks.

    (ii) Draw the graph of the above function according to a suitable scale.

    (b) By using the graph;

    (i) Write the maximum value of the function.

    (ii) Write the co-ordinates of the vertex.

    (iii) Write the equation of the axis of symmetry.

    (iv) Write the range of x where the function increase positively.

Part B
Answer five questions only.

7. (a) An athlete who is practicing for a marathon race, runs 1km on the first day, 3km on the second day and 5km on the third day. In this way, he runs 2km more than the previous day and practices for two weeks.

    (i) Write the distances he ran on first 4 days as a number pattern and describe what kind of a progression is it?

    (ii) Calculate the distance ran on the 10th day.

    (iii) Find the total distance he ran within two weeks.

    (b) Find the arithmtic mean between –7 and 13.

8. Do the following constructions using a pair of compasses and a straight edge with a cm/mm scale.

    (i) Construct the triangle PQR such that $PQ = 8cm$, $P\hat{Q}R = 60^0$ and QR = 6cm.

    (ii) Construct the angle bisectors of $P\hat{Q}R$ and $Q\hat{P}R$.

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9. An incomplete table prepared to calculate the mean mark of 200 candidates who faced a competitive examination is given below.

Class intervals (marks)	Mid value (x)	Deviation (d)	Frequency (f)	f x d
10 – 19	14.5	–30	15	–450
20 – 29	24.5	–20	23	–460
30 – 39	34.5	....	30	....
40 – 49	44.5	0	48	0
50 – 59	54.5	+ 10	35	350
60 – 69	....	+ 20	29	....
70 – 79	....	....	12	360
80 – 89	84.5	+ 40	08	320
			200	....

    (i) Fill the blanks of the above table.

    (ii) Calculate the mean mark using assumed mean.

    (iii) Write the modal class of the above distribution.

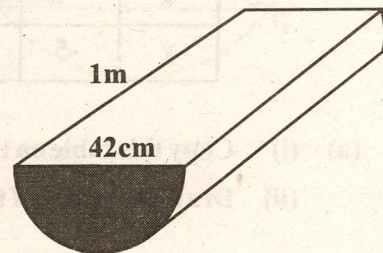   (iv) If only 10% of the higher marks will be selected, what is least mark selected.

3. (a) (i) Factorize. $15xy^2 + 3xy - 12y$

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(b) Navod went to a fruit stall. Number of apples bought is 3 less than the number of wood apples he bought. The price of an apple is Rs. 35 and a woodapple is Rs. 15. The total amount of money he spent for fruits is Rs. 345.

(i) If he baught x number of woodapples, write the number of apples in terms of x.

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4. (a) Simplify $\dfrac{5}{x+5} - \dfrac{4}{x+3}$

(b) Write the simplest equivalent fraction. $\dfrac{2x^2 + 10x}{(x+5)(x-1)}$

(c) Solve $2a + b = 13$

$3a - 2b = 9$

5. (a) (i) Find the value of Tan A, if $\text{Sin A} = \dfrac{5}{13}$

(ii) Evaluate. $2 \, \text{Sin} \, 30^0 \, \text{Cos} \, 60^0$

(b) A student standing at a certain place on the play ground, observes the top of the building in front of him, with an angle of elevation 30^0. When he moves 20m towards the building the angle of elevation is 45^0.

(i) Draw a scale drawing to represent the above information taking the scale as 1cm representing 5m.

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6. (a) A container prepared by cutting a cylindrical barrel, vertically in to two equal parts is given in the figure. The diameter of it is 42cm and the length is 1m.

(i) What is the radius of the container?

(ii) Find the area of the curved surface of the container.

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(b) Simplify using logarithmic tables.

$$\dfrac{329.7}{19.2 \times 7.621}$$

Part B

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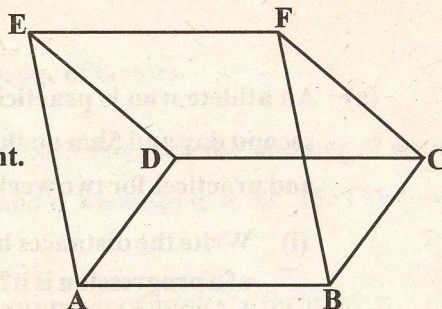
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    (i) Prove that $\overset{\wedge}{ADE} = \overset{\wedge}{BCF}$.

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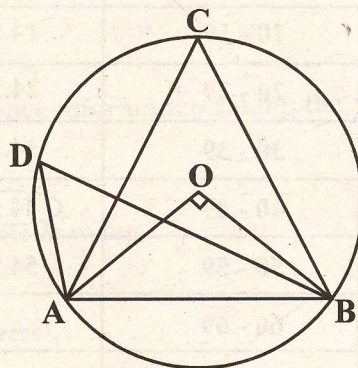 (b) Kanishka takes out a ball from the above box and without replacing, he takes another ball out.

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12. (a) Write a theorem related to segments of a circle and explain it using a diagram.

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If $\overset{\wedge}{AOB} = 90^0$,

    (i) Find the magnitude of $\overset{\wedge}{ACB}$.

    (ii) Find the magnitude of $\overset{\wedge}{ADB}$.

    (iii) Find the magnitude of $\overset{\wedge}{ABO}$.

  (c) If the radius of the circle is r;

    (i) Show that $AB = \sqrt{2r^2}$.

    (ii) Show that $Tan 45^0 = 1$.

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Department of Education - Western Province
Year End Evaluation - 2013
Grade - 10

32	E	II

Mathematics II   Time - 02 hours and 30 minute

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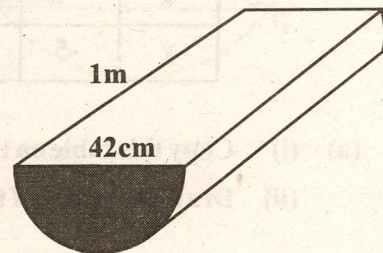   (iv) If only 10% of the higher marks will be selected, what is least mark selected.

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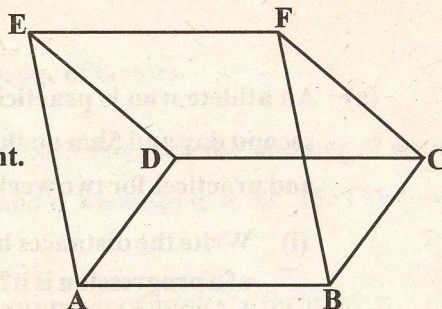
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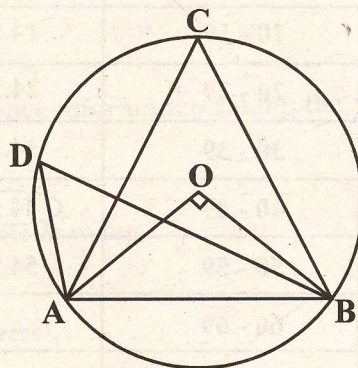
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