Department of Education - Western Province

Year - End Evaluation - 2011

Grade - 10

Mathematics - I

Name / Index No :- ..... **Time : 02 hours.**

Questions in part A 1 - 10 carries 1 mark each.
11 - 30 carries 2 marks each
Questions in part B carries each 10 marks.

Part - A

Answer **all** question on this paper it self

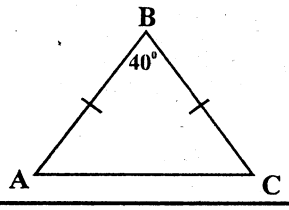
(01) If the price of 3kg of sugar is Rs 288/-, then find the price of 500g sugar.

(02) Solve $x+5=8$

(03) Write five of $\frac{1}{4}$ as a mixed number.

(04) Between which whole numbers the value of $\sqrt{7}$ lies.

(05) In triangle ABC BA = BC.
Find the magnitude of $B\hat{A}C$.



(06) What is the value denoted by 𝍸 𝍸 |||

(07) If A and B are disjoint sets, what can you say about $A \cap B$.

(08) If a vehicle travels 40kmh^{-1} find the distance travelled in 3 hours.

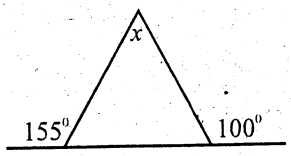
(09) Write $\frac{3}{4}$ as a decimal number.

(10) Write the co - efficient of $\frac{x}{2}$.

(11) Tenth and eleventh terms of on arthmatic progression are 40and 45. Find the common difference and the first term of that progression.

(12) Find 2 values of x which satisfies the inequality $x+2<7$

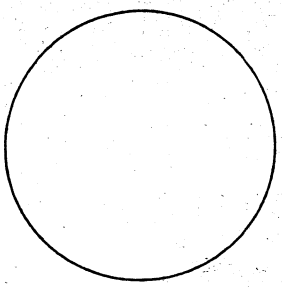
(13) Find the value of x according to the data on the diagram.



(14) Five people take 7 days to complete a certain work. How many people needed to complete twice of that work during 7 days.

(15) Divide the $6x^2+3x$ by $2x+1$ and write the quotient.

(16) Propose a geometrical construction to find diameter of the given circle. Draw a rough sketch and write down the geometrical therom you used.



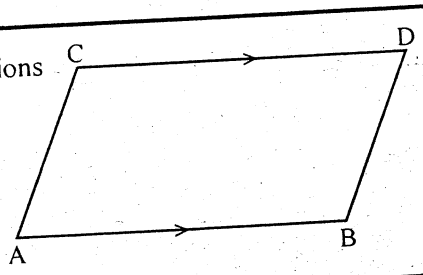
(17) Find the value without using logarhymic tables.

$\lg\frac{18}{5}+\lg\frac{250}{9}$

(18) The mean deviation of a data distribution is -2 and the mean is 30. What is the assumed mean taken in these calculations.

(19) The electricity bill is Rs. 1100 for a month and 10% VAT will be added to it. Calculate the total bill to be paid by the customer.

(20) AB // DC in quadrilateral ABCD. Mark the necessary conditions in the figure ABCD to be a parallelogram.
Write the theorem related to the appropriate condition.



(21) $x - 2y = 7$
$3y - 2x = 3$ Find the value of $y - x$ with out solving these linear simultaneous equation.

(22) Find the value of $10101_{two} - 1011_{two}$

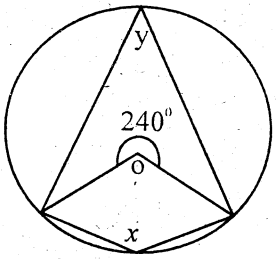
(23) If the scale of a map is 1: 50 000, find the actual distance denoted by 24cm.

(24) A and B are two events of a random experiment.
$p(A) = \frac{3}{10}$, $p(B) = \frac{7}{10}$ and $p(A \cap B) = 0$
What type of events are A and B ? Give reasons.

(25) Which fraction of $1\frac{3}{4}$ gives 9

(26) Bus leaves each 45 minutes to Kandy, each 20 minutes to Nugegoda and each 30 minutes to Kalutara from a bus - stand. At 6.30 a.m. three such buses left. Find the time which they depart together again.

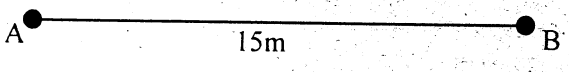
(27) O is the center of the circle. Find the magnitudes of x and y according to the given data.



(28) Arithmetic mean between p and 30 is 18. Find the value of p.

(29) Simplify $\frac{x^3 \times y^5}{x^{-2} y}$

(30) A and B are two houses apart 15m. It is necessary to dig a well 10m away from both houses. Draw a rough sketch to denote a suitable place for the well by using the knowledge of loci.



Part - B

Answer **all** questions.

(01) Mihiri spent $\frac{1}{5}$ of money she has on Monday, $\frac{2}{7}$ on Tuesday. She decided to spent the remainder in equal amounts in next three days.

(i) Find the fraction for the expenditure on Monday and Tuesday.

.....

.....

What is the remaining fraction out of the total amount.

.....

action of money expected to spend on Wednesday.

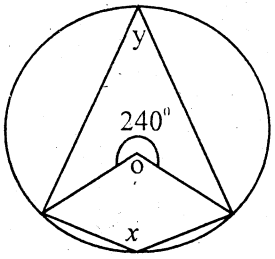
.....

Wednesday, find the total amount which Mihiri had.

.....

.....

(27) O is the center of the circle. Find the magnitudes of x and y according to the given data.



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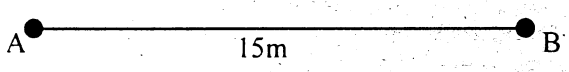

Part - B

Answer **all** questions.

(01) Mihiri spent $\frac{1}{5}$ of money she has on Monday, $\frac{2}{7}$ on Tuesday. She decided to spent the remainder in equal amounts in next three days.

(i) Find the fraction for the expenditure on Monday and Tuesday.

.....

.....

(ii) What is the remaining fraction out of the total amount.

.....

(iii) Give the fraction of money expected to spend on Wednesday.

.....

(iv) If she spent Rs 60/- on Wednesday, find the total amount which Mihiri had.

.....

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(02) a) Amal started a business by investing Rs 10 000 at the beginning of the year. After two months, Sumal joined by investing Rs 15 000. Then after another two months later Vimal joined to the business by investing Rs 15 000. At the end of year their profit is Rs 15 600

(i) Find the ratio which the profit should be divided among three of them according to the amount and the time in simplest form.

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(ii) Find the amount of profit which Sumal gets. Give that as a percentage of his investment.

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(b) If a good is sold for Rs 2600/- by keeping 30% profit, find the cost of it.

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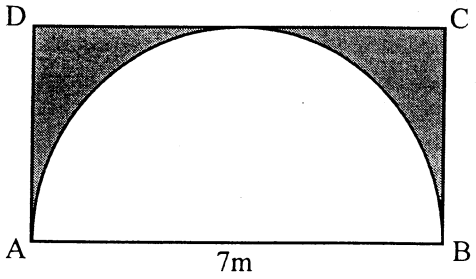
(03)



The diagram shows a thin wooden rectangular front view of a stage. The entrance is prepared by removing a semi - circular portion with diameter 7m. The remaining shaded area was decorated with beautiful art work.

(i) What is the height of the decoration.

.....

.....

(ii) What is the length of bulb wire needed to illuminate the semi - circular arc.

.....

.....

(iii) Find the area of the removed semi - circular wooden part.

.....

.....

(iv) Calculate the area of the art work.

.....

.....

(v) If Rs 400/= is needed for 1m^2 of art work, calculate the total cost for art work.

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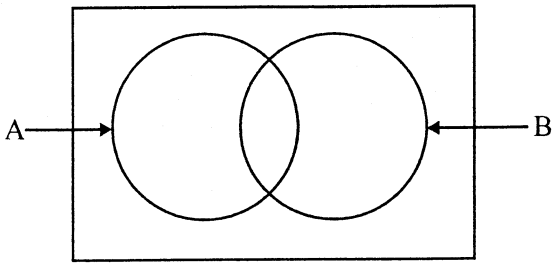
(04) Out of 35 students in a class, 5 students are left handers. 15 are girls and there are 17 right hander boys.



A = { Students who are left handers }

B = { Girls }

(i) Complete the Venn diagram according to the above data.

.....

(ii) How many left hander boys are there.

.....

(iii) Find the total number of right handers.

.....

(iv) Shade the area $A' \cap B$ on the Venn diagram. Explain it in words.

.....

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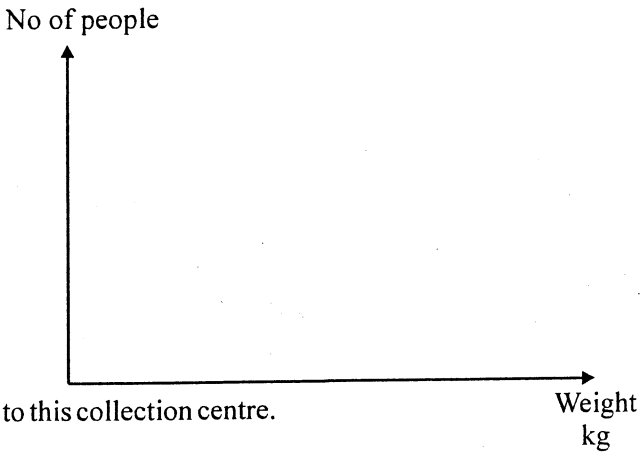
(05) The weight of the banana bunches of a collection center is given below.

(5 - 10 class interval denotes values of 5 or greater than 5 and less than 10)

Weight (kg)	0 - 5	5 - 10	10 - 15	15 - 20	20 - 25	25- 30
No.of people	6	8	16	20	14	4

(i) Draw a histogram to denote the above information with a suitable scale.



(ii) If 10kg of banana is submitted, which class interval does it belongs.

.....

.....

(iii) How many people brought banana bunches to this collection centre.

.....

(iv) Which range of weight most number of people brought bananas.

.....

(v) What is the possible highest weight of bananas brought by a person on that particular day to the nearest whole number.

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Department of Education - Western province

Year - End Evaluation - 2011

Grade - 10

Mathematics - II

Name/Index No :- ..... Time : 02 $\frac{1}{2}$ hours.

* **Answer 10 questions** selecting **five** questions from part A and **five** questions from part B.
* Each question carries 10 marks.
* The volume of a solid right circular cylinder of base radius r and height h is $\pi r^2 h$ and curved surface area is $2\pi rh$

Part - A

Answer **five** questions only.

(01) (a) The following gives a receipt issued by the town council to pay the assessment tax for a house.

Annual Assesement	Date	Amount to be paid
Rs. 75000	2011.03.31 or before	Rs. 750.00
	2011.06.30 or before	Rs. 750.00
	2011. 09.30 or before	Rs. 750.00
	2011.12. 31 or before	Rs. 750.00

(i) What is the amount to be paid for a quarter?

(ii) Find the annual assessment tax per year?

(iii) Calculate the rate of assessment tax per year?

(iv) Find the assessment tax to be paid for a house assesed Rs 82 000 per year.

(b) 22% duty tax should be paid for an electrical item. If the duty tax is Rs 4 400, find the value of it after duty tax is paid.

(02) An incomplete table of set of values to draw the graph of the function $y = -2x^2 + 3$ is given below.

x	-3	-2	-1	0	1	2	3
y	-15	.....	1	3	1	.....	-15

(a) (i) Copy the above table to your answer script and complete the given blanks.

(ii) Select a suitable scale for x and y axes and sketch the graph of the function.

(b) By using the graph

(i) Find the maximum value of the function.

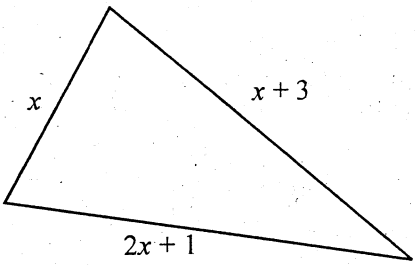
(ii) Write the coordinates of the refraction point.

(iii) Write the equation of line of symmetry.

(iv) Give the equation of the new function, if this graph is shifted two units towards the positive y axis.

(03) (a) (i) Factorize $x^2+3x-28$

(ii) Simplify. $\frac{2}{x+2} - \frac{3}{(x+1)(x+2)}$



(b) The perimeter of the triangle of the given figure is 28cm.

The lengths of the sides are denoted in terms of x.

(i) Construct an equation for the perimeter of the triangle in x.

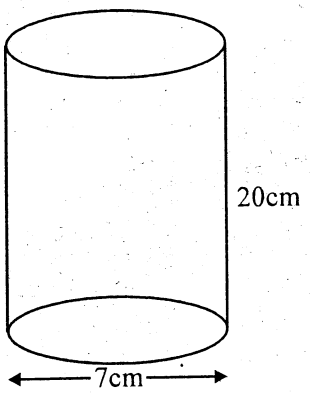
(ii) Find the lengths of the sides of the triangle separately by solving it.

(04) The figure shows a cylindrical vessel of diameter of the base is 7cm and the height 20cm.

(a) (i) What is the radius of the base.

(ii) Calculate the curved surface area of it.

(iii) Find the volume of the vessel.



(b) If we want to **change the radius (r) of the base without changing the height** to become the capacity of the vessel into 1 litre, show that radius $r = 5\sqrt{\frac{7}{11}}$

(05) (i) Expand and simplify $(2a-1)^2$

(ii) Find the value of $88.5^2 - 11.5^2$ by using the knowledge of factors.

(iii) Solve $2x+y = 10$

$3x+2y = 17$

(06) The following data table gives the information about the sales of an educational magazine per day during past three months.

No of books	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35
No of days	11	13	15	18	16	09	08

(a) In this data distribution, find the

(i) modal class (ii) median class

(b) By choosing the mid value of the modal class, calculate the mean number of magazines sold per day to the nearest whole number.

(c) According to the above, how many magazines should be ordered for the coming year.

Part B

Answer five questions only.

(07) A vehicle travels in hill country 5km less than the distance travelled in the previous day. And on the very first day it travels 75km.

(i) Write the distances travelled on first three days in order.

(ii) Show that they lie in an arthmatic progression.

(iii) In which day the vehicle travels 40km.

(iv) If the journey ends in the 12th day show that the total distance travelled is not more than 600km, by giving reasons.

(08) (a) By using the cm/mm straight edge and the compass.

(i) Construct the triangle ABC where AB = 6cm, BC = 4cm and $A\hat{B}C = 90^0$

(ii) Construct the circumcircle of it.

(b) (i) If the radius of your circle is r show that $r = \sqrt{13}$

(ii) Measure the radius of the circle and write, and hence find the value of $\sqrt{13}$

(09) There are 2 toffees of orange flavoured and 4 toffees tamarine flavoured in a bag. One toffee was taken out randomly and without replacement another toffee was taken out in this random experiment,

(i) Sketch the graphical representation of the sample space.

(ii) Find the probability of obtaining orange flavoured toffee in both occurrences.

(iii) Find the probability of obtaining two toffees with same flavour

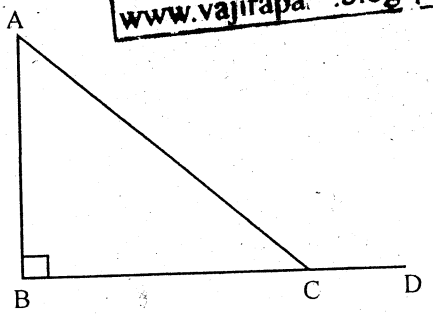
(iv) Himali says that there is more than 50% probability for obtaining two toffees in different flavours. Is this statement true, give reasons.

(10) The trigonometric ratios for 30^0 and 60^0 are given below. Answer the following questions by using them.

Ratio \ Angle	30^0	60^0
sin	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$
cos	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$
tan	$\frac{1}{\sqrt{3}}$	$\sqrt{3}$

(a) Find the value of $\sin 30^0 \cos 60^0 + \cos 30^0 \sin 60^0$

(b) AB post is tied to be vertical with a wire to the point C. If BC = 3m and the wire makes 60^0 angle with the horizontal ground,



(i) Copy the diagram to you answer script and mark the above data on it.

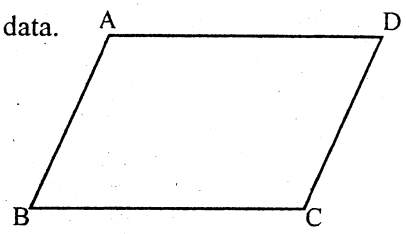
(ii) Calculate the height of the post.

(iii) Find the length of the wire AC.

(iv) If this wire is tied to the point D having 45^0 angle with the ground level, show that the length CD is $3(\sqrt{3} - 1)$

(11) In the given parallelograms A B C D,

the angle bisector of $\hat{B}$ meets AD at $\hat{E}$, and the angle bisector of $\hat{D}$ meets BC at $\hat{F}$.



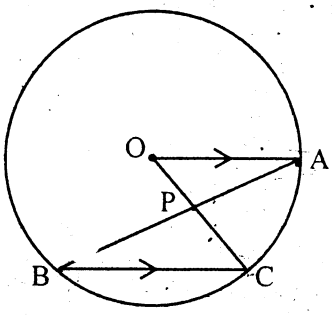
(i) Copy the diagram and complet it according to the above data.

(ii) Show that $A\hat{B}E = C\hat{D}F$

(iii) Prove that $\Delta ABE \equiv \Delta DCF$

(iv) Prove that A E C F is a parallalogram.

(12) In the circle centre O, the radius OA and the chord BC are parallal. AB and OC intersect at P.



(i) Name an angle equal to $A\hat{B}C$.

(ii) Write the relationship between $A\hat{B}C$ and $A\hat{O}C$. Mention the geometrical theorem related to your answer.

(iii) Prove that $A\hat{P}C = 3\,O\hat{A}B$

(iv) Express an angle in the same segment equal to $A\hat{B}C$ on your diagram.