Royal College - Colombo 07
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Grade 10 – Second Term Test – July 2018
දෙවන වාර පරීක්ෂණය - 2018 ජුලි 10 ශ්‍රේණිය

කාලය : පැය 2
Time :2 hours

Mathmatics – I
ගණිතය– I

| 32 | E | I |

Name :- .... Grade : -................. Index number:-....................

Name / Index No : ....

....

Signature of invigilator

Important :-

❖ This paper consists of 8 pages.

❖ Write your index number correctly in the appropriate place on page one and page three.

❖ Answer all question on this paper itself.

❖ Use the space provided under each questions for working and writing the answer.

❖ It is necessary to write relevant steps and correct units.

❖ Markes will be awarded as follows two marks each for question 1 – 25 in part A.

10 marks each for questions in part B.

For marking examiner's use only

Question number		Marks
A	1 - 25	
B	1	
	2	
	3	
	4	
	5	
Total		

....
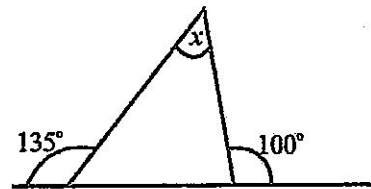Marked by

Part A

○ **Answer all questions on this question paper itself.**

1. Write 40% as a fraction

2. Simplify $2a \times a^2$

3. Find the value of "x"

4. Write in index form

   $\log_2 32 = 5$

5. Simplify $\dfrac{1}{2x} \times \dfrac{1}{2}$

6. Find the value $\dfrac{1 - 0.04}{2 - 0.4}$

7. Sum of two interior angles of a triangle is 105^0. Find the value of the remaining interior angle.

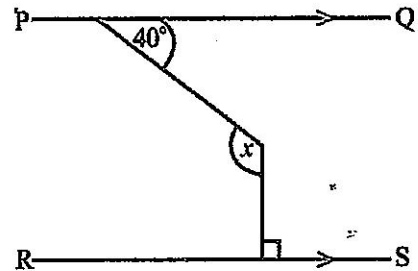Name / Index No : ....

8.   Simplify $(2 - 5x) - x(2x - 5)$

9.   If the smaller part is Rs. 12000/=, when a certain amount divided in the ration 3:2, find the amount divided

10.   Write a similarity and dissimilarity between a rectangul and a rhombus.

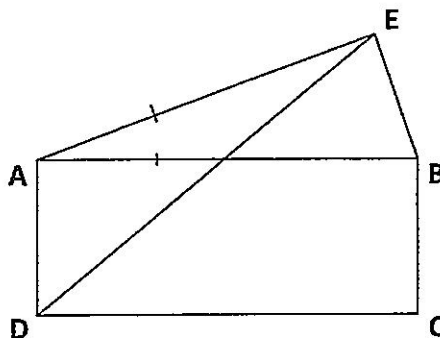11.   According to the data given in the figure find value of x.

12. $a - ax - bx + b$ factorize.

13.   Solve $4(5 - x) = 8$

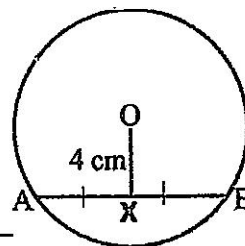14.   Perimeter of a rectangular flower bed is 45m. Find the length of it, if the width is 8.1m

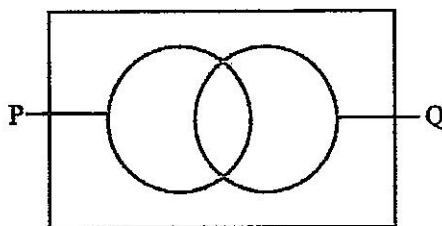15. ABCD is a rectangle. If, AE =AB and $A\hat{B}E = 75^0$, find the value of $D\hat{A}E$.

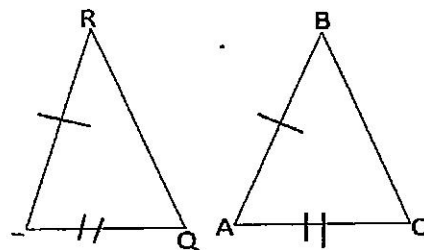16. Find the value of $(3x + 5y)$ when x = 2 and y = $\frac{1}{3}$

17. In the circle with center 0, radius is 5cm. OX= 4cm, Find the length of the chord AB.
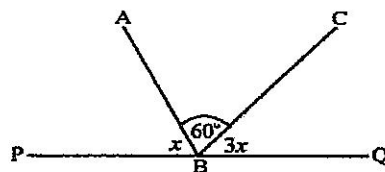

4 cm

18. Shade the region belongs to $(P \cap Q)^I$ in the given venn diagram.

P   Q

19. Write the remaing part must be equal to be PQR and ABC trangles congruent & state the case of congrnency.

20. PBQ is a straight line and $\overset{\wedge}{ABC} = 60^0$ write a pair of complementary adjacent in angles the figure.

21. Write the equation of the straight line graph which is parallel to $2y + 3 = 4x$ and goes through the origin.

22. 2, 8, 3, 6, 5, 2, 3, 4, 2 Find the mode and the median.

23. Area of the ABCD trapezium is 60 cm². If AB + DC = 20cm, find the length of BC
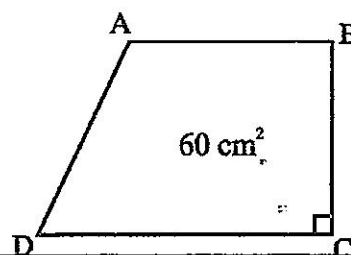
24. Find the amount to be paid as rates, for a house assessed to Rs.50 000. Annual rate is 4%.

25. AB is a straight road. Nimal walks at a distance 8m from "A" and Kamal walks at a distance 3m from AB. From same side using the knowledge of Loci, sketch the point where the Kamal and Nimal meet.

A————————————B

Part B

- Answer all the questions on this paper itself.

1) Fathima gave $\frac{1}{6}$ of an apple she bought to her son and $\frac{1}{4}$ of it to her daughter.

   (i)   What fraction of the apple will remain after given to the son?

   (ii)   Find the total fraction of the apple given to her children.

   - If $\frac{1}{2}$ of the remaining apple was given to a daughter's friend

   (iii) Find the part of the apple she received.

   (iv)   If Fathima left 35g of the apple with her, find the weight of the apple.

2) Diagram shows a patch work made by 6 small circles of radius 7cm one large circle. center of the large circle and the small circle in the middle are coincide together.

   (i)   Find the radius of the large circle

   (ii)   Find the area of a small circle

   (iii) Find the area covered by the small circles.
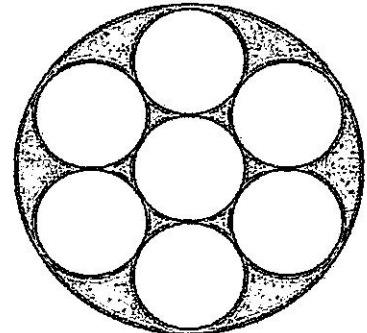
   (iv)   Find the area of shaded part.

   (v)   Find the minimum length of a side of a square shape cloth needed to cut 7 smallcircle.

3)   In a certain manufacturing company, the material cost and the labour cost of the production of a motorcycle was Rs. 30 000/= and Rs. 15 000/ respectively. This year material cost increases in the ratio 2 : 3 and labour cost increases in the ratio 3 : 5

(i)   Find the ratio in simplest from between the material cost and the labour cost before increased.

(ii)   Find the new material cost and the labour cost

(iii)   If duty of 10% is charged when the motor cycle imported, find the amount of tax to be paid.

Of the motorcycle if the price is marked by keeping a profit of Rs. 20 000/= after imported

(iv)   Find the marked price.

(v)   At outright purchases 5% discount is allowed. Find the selling price of the motor cycle with the discount.

4) (A) The Following venn diagram shows information about dengue sharamadhana campaign done by grade 11 students
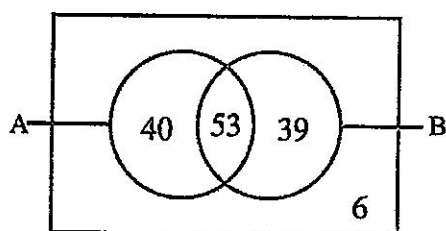
A=   {Students who clean the ground}

B=   {Students who clean the class rooms}

ε=   {Students of Grade 11}

(i)   Find the total number of students who clean only the ground

(ii)   Find the total number of students who clean the class rooms

(iii)   Find the total number of students in grade 11

B) A student participated in the sharamadana campaign had 3 mango flavored toffees and 5 orange flavored toffees in his pocket. He selected one toffee at random and gave to his friend.

(i) find the probability of getting a mango flavored toffee

(ii) Find him probability of getting an orange flavored toffee.

5) The following chart is drawn to illustrate number of animals in a farm. The number of goas and the hens in the farm are equal.

(i) Find the angle of the sector which represents hens.
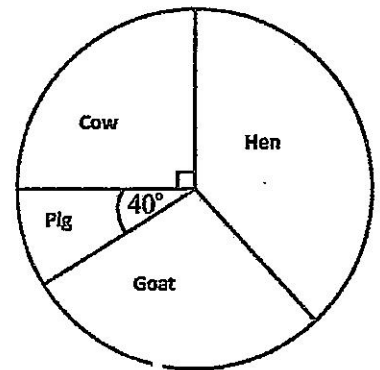
If there are 80 pigs,

(ii) Find the number of cattle in the farm.

(iii) Find the total number of animals in the farm

In the farm there are oxen s and Cows in the ratio 5:1. If a cow produce 5l of milk per day. and if 1l sells at Rs. 45/=,

(iv) Find the minimum income obtained by selling milk, per day.

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Grade 10 – Second Term Test – July 2018

දෙවන වාර පරීක්ෂණය - 2018 ජූලි - 10 ශ්‍රේණිය

කාලය : පැය 3
Time :3 hours

Mathmatics – II

ගණිතය – II

| 32 | E | II |

Name :- .... Grade : -................. Index number:-...................

- Answer ten questions selection five questions from part A and from part B.
- Each questions carries 10 marks
- Write the relavent step and correct unit when answering each question.

Part – A
Answer five questions only

01) The assessed value of the building owns to Sanula is 300,000 rupees. The municipal council imposed 16% as the annual rates.

    (i)   Find the annual rates

    (ii)   Find the amount for a quarter.

    Sanula rent out this building for 30,000 rupees per month. He obtain the rent for a year as an advance payment.

    (iii)   Find the advance payment Sanula obtains.

    If Sanula pay the rates from the advance payment and lends the remaining amount with 12% simple interest per annum.

    (iv)   Find the income received by Sanula as the interest after one year.

    (v)   Ajith says that it is enough to pay the annual rates by the amount received as the interest by lending money. Do you agree with Ajith statement? Give reasons for it.

02) The following is an incomplete table .Draw to draw the graph of the function $y = 3 - 3x^2$

X	-2	-1	0	1	2
y	-9	0	………...	0	-9

    (i)   Find the value of y when $x = 0$

    (ii)   Draw the graph of the above function by taking 10 small divisions as one unit along the X – axis and 10 small division as tow units along the y – axis.

    (iii)   Find the maximum value of the function.

    (iv)   Write the coodinates of the refraction point.

    (v)   Using the graph . find the rootsof the equation $x^2 – 1 = 0$

    (vi)   Write the equation of the new function when the above graph shifted two units along the positive direction of y axis.

03) The following table represents the information about a certain communicable disease.

Age of the patient	Mid value (x)	Number of patient (f)	f(x)
2 - 8	5	13	65
8 - 14	....	12	132
14 - 20	17	20	340
20 - 26	23	45	1035
26 - 32	29	50	1450
32 - 38	35	30	....
38 - 44	....	23	....
44 - 50	47	07	....

(i) Copy the above table in your answer sheet and complete the x and $f(x)$ columns.

(ii) What is the age difference of the patient who represents the model class.

(iii) Find the mean age of the patient.

(iv) The tendency of the breeding the disease of the patient in 45 years is more than the patient in 6 years. Do you agree with this statement give reasons?

04) (a) (i) Find the value,

$$\log_3 81 + \log_2 32 - 3$$

(ii) Solve,

$$\log_3 40 + \log_3 x = \log_3 16 + \log_3 20$$

(b) Simplify using the logarithmic tables.

$$\frac{342.5 \times 6.21}{12.36}$$

05) (a) (i) Solve, $\dfrac{4}{x+3} - \dfrac{1}{4(x+3)} = \dfrac{3}{20}$

(ii) Solve, $x(x-3) = 0$

(b) The price of two wrist watches and three belts is 800 rupees and the price of three wrist watch and a belt is 850 rupees. Taking the price of a wrist watches as x and a belt as y, Build up a pair of simultanems equations and find the price of a wrist watch and a belt.

06. The diagram shows the shape of a flower bed. It is made by two semicircles with diameters of 21m and 14m. If the unshaded part covered by concrete.

    (i)   Find the perimeter of the outer line of flower bed.

    (ii)   Find the area of the flower bed in square meters.

    (iii)   If "Idda" plants were planted along the outer boundary of the flower bed 3m apart each other, find how many plants needed to cover the outer boundary.

    (iv)   If the owner of the flower bed says that a plant needs 250g of fertilizer for a month and one packet of fertilizer cost Rs. 320. Find the total cost needed to fertilize the plants for a month.
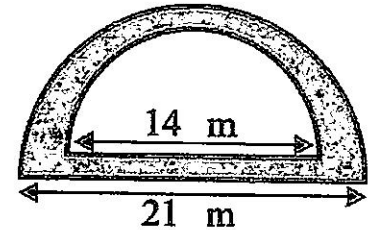

Part B

Answer five questions only

07. Nataraja collects money in a till in every week. He collects money according to a common term of $T_n = 3(4n - 1)$

    (i)   Find the money put into the till in the first week.

    (ii)   If there are four weeks in the first month write the money collect for the first month as a number pattern.

    (iii)   By assuming there are four weeks in every month, find the amount put into the till in the last week of 10th month.

    (iv)   Show that the ratio of total amount put into the till in the first month and the amount put in the last week of 10th month is 12 : 53

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

    (i)   Construct the trapezium PQRS such that, PQ=5.5cm, $S\hat{P}Q = 60^0$, PS= 4.8cm,, RS= 8cm and PQ // RS.

    (ii)   Find the value of the angle $S\hat{R}Q$.

    (iii)   Construct the locus of the point equidistance to Q and R vertices.

    (iv)   Construct the perpendicular bisector of PQ side and name the intersection point of locus in (iii) above and perpendicular bisector as O.

    (v)   Construct the circle, taking O as the center and OP as the radius.

    (vi)   Measure the radius of above circle and write the special features of the circle.

09. The diagram represents the quadrilateral ABCD. The bisector of $\hat{A}$ and $\hat{C}$ angles is AC. AC and DB intersect at O.
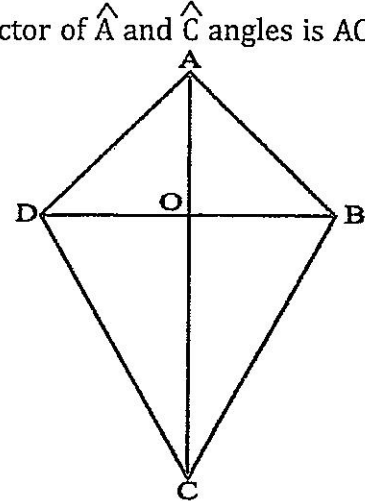
    (i)   Copy the above diagram on your paper and mark the data

    (ii)   Prove that $\triangle ABC \cong \triangle ADC$

    (iii)   Prove that $\triangle DOC \cong \triangle BOC$

    (iv)   Show that $B\hat{O}C = 90^0$

    (v)   What can you say about OC and DB lines ?

10. A car takes t hours to travel from the town A to the town B starting from the town A with a uniform speed of vkmh^{-1}. Due to a fault of breaks of the car, the driver reduced the speed of the vehicle by 2kmh^{-1}. The car late half an hour to arrived town B because of the fault of breaks. After recovering the fault of breaks the diver travels towards town A from B with a uniform speed of (v+ 3) kmh^{-1} in (t – ½) time. Find the starting speed (v) and the time taken to travel A to B (t) without the fault of breaks.

11. (a)   Prove that, The sum of the interior angles of a triangle is two right angles.

    (b)   ABC is a triangle. The perpedicular drawn from A to AC and the bisector of the interior angle C meets at D.

        Prove that,

$$A\hat{B}C + B\hat{A}C = 2A\hat{D}C$$

12. Out of 80 people who come to a temple on a full moon Poya day 40 bought flower baskets 50 bought joss sticks. The people who bought flower baskets bought joss sticks too. There were 12 children among the people who without anything and all the other were male adults.

    (i)   Represent the above information in a venn diagram with values.

    (ii)   Find the number of people who bonght only joss sticks.

    (iii)   Find the number of people who didn't bring flower baskets and joss sticks.

    (iv)   How many male adults who did'nt bring flower basket and joss sticks.

    (v)   Show that the ratio of people who didn't bring anything of it and people who bought only joss sticks is 3:1