

First Term Test - 2018
Mathematics - Grade 11

Time :- 3

hours

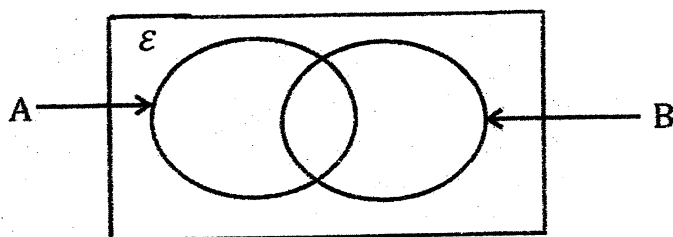
Name / Index No :

Part A

* Answer all the question in part A on this paper itself.

01). A vehicle travelled 60m in 4 seconds at uniform speed. Find it's speed.

02). Shaded the region which indicated the set $(A \cup B)^c$ in the diagram.



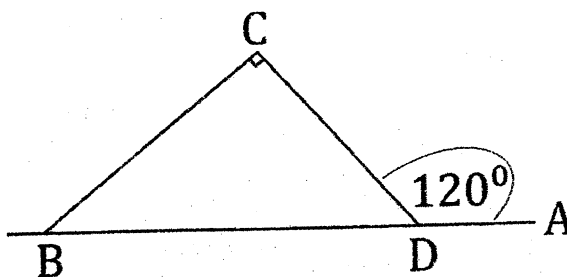
03). Express $81 = 3^4$ in logarithmic notation.

04). Solve $(x + 3)(x - 5) = 0$

05). Simplify $\frac{1}{5a} + \frac{1}{10a}$

06). Find the least common multiple of $2xy^2$ and x^2y

07). Find the magnitude of \hat{DBC}



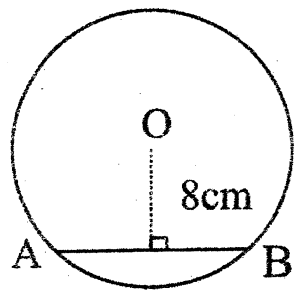
08). Select the first approximation of $\sqrt{32}$ from the following values.
5.2, 5.3, 5.7, 5.9

09). Find the factors of $2x^2 - 18$

10). What is the gradient and intercept of the straight line which expresses by $2y = 6x - 4$?

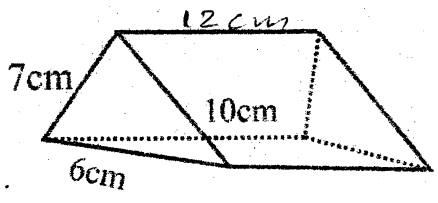
17).

11). If $AB = 12\text{cm}$, find the radius of the circle.



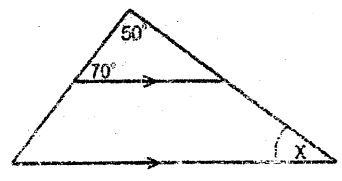
18).

12). Draw two different surface of this given prism



19)

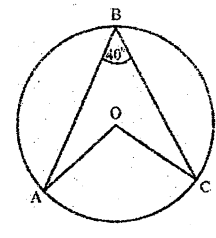
13). Find value of x



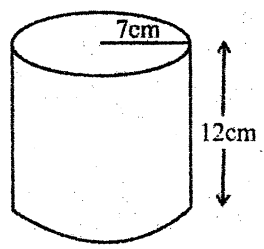
14). In the class interval (35 - 43)

- (i). Find the size.
- (ii). Write the mid value.

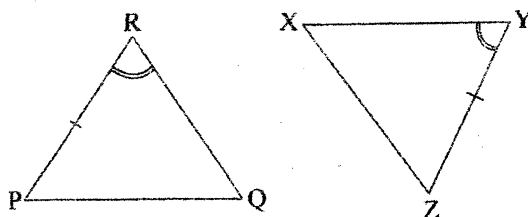
15). Find the value of \widehat{AOC} (Reflex angle)



16). Find the area of curved surface of this cylinder.



- 17). What is the extra data needed to show that the triangle PQR and XYZ to be congruent and by which conditions?



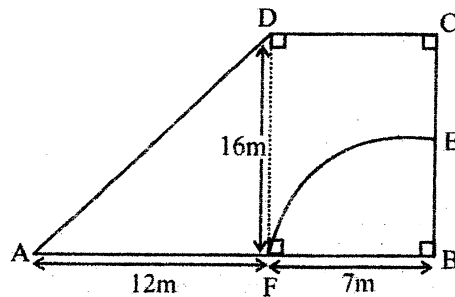
- 18). Solve $2 + \frac{3}{x} = 5$
- 19). The following shows the second and third term of Arithmetic progress.
 , 7, 11 ,
 (i). Find the 1st term
 (ii). Find the 4th term
20. Make 't' the subject of the formula $V = U + at$
21. Expound $(2x + 3)^2$
22. Find the time taken by water pump which pumps at the rate. of 40 l of water per minute to fill a water tank of capacity $8m^3$
- 23). If $A+B = 140^\circ$ and $B + C = 100^\circ$ in ABC triangle, find the value of B.
- 24). AB and CD are two parallel fences its is necessary to fix a pole on CD which equidistant from A & B show that point in the diagram by using your knowledge of Loci.
- 25). If $a^b = b^a$, find 2 suitable positive integers for a & b

Part B

Answer all question on this paper itself.

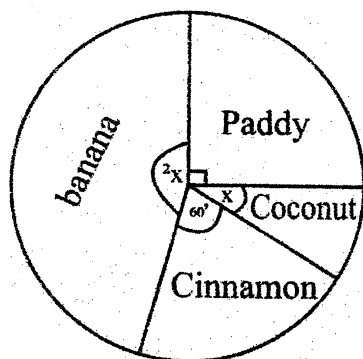
- 01). Mr. Perera spent $\frac{3}{5}$ of the amount he received as the bonus from his work place to repair his house and $\frac{1}{6}$ of it to buy furniture.
- (i). What fraction of the total amount was spent for both expenditures. (02 mark)
- (ii). He have $\frac{2}{7}$ of the remaining amount to his son. What fraction of the total amount did the son receive. (02 marks)
- (iii). The remaining amount of Rs. 15000, he deposited in the bank. Find the total amount he received as the bonus. (03 marks)
- (iv). Find the difference between the amounts that he spend to repair the house and the amount he have his son. (03 marks)

- 02). The diagram shows a part ABCD which shape of a trapezium BEF sector represent the pond. The rest of the garden is covered with grass.



- (i). Find the length of AD (02 marks)
 - (ii). Calculate the length of the arc EF (03 marks)
 - (iii). Find the perimeter of the portion covered with grass. (03 marks)
 - (iv). Find the difference between the areas of the portion covered with grass and the portion separated to the pond. (03 marks)
- 03). (a). It is estimated that to dig a large drain 20 men take 15 days.
- (i). How many man days are estimated for this task.
 - (ii). If the contractor has taken 5 extra workers after 5 days digging the drain, how many days will they take to complete the task before the scheduled date ?
 - (iii). The workers were provided with lunch during the task. If Rs. 150 was spent for one person what is the total amount ?

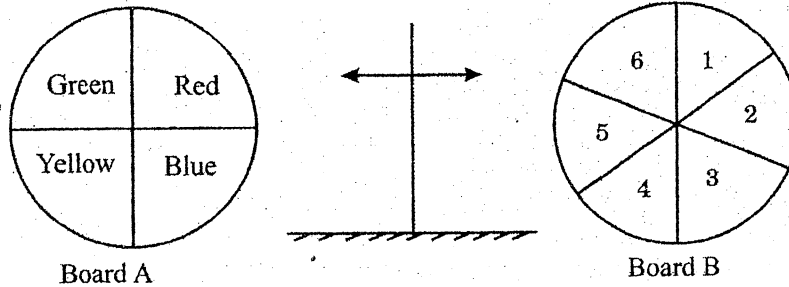
- 04). The following pie chart illustrates the information on the types of crops cultivated on a certain plot of land.



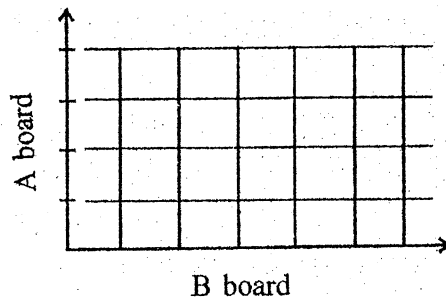
- (i). What is the angle of the sector which denotes coconut. (02 marks)
- (ii). Find the fraction of the whole land which is used to cultivate banana. (02 marks)
- (iii). If the portion of the land which used for cinnamon is 3000m^2 , then find the area which is used paddy. (03 marks)

- (iv). Cinnamon was removed from $\frac{1}{2}$ of the land area where cinnamon was grown and coconut was grown in that part. Find the whole area of land where coconut is grown. (3 marks)

- 05). The diagram shows an equipment that is used in a certain competition. After operation an electric button the 2 boards rotate for sometime and stop.

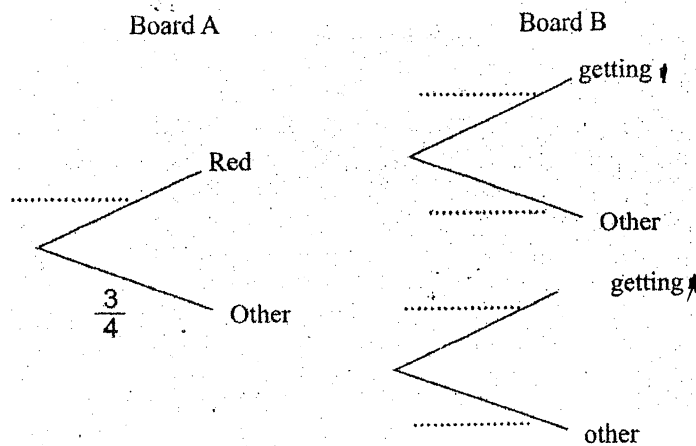


- a. (i). Represent all possible outcomes using the following grid. (3 marks)



- (ii). Enclose the ^{event} "getting an event number and getting the blue colour" on the grid and find the probability. (3 mark)

- (b). To be a winner one has to get red in board A and number 1 in board B. Complete the following diagram according to that and find the probability of being a winner.



Mathematics - Part II
Grade 11

Answer five question only.

01. Mr. Silva has rented out his business apartment for Rs. 6000 per month and its annual assest value is estimated to Rs. 200,000. The pradesheeya saba to which it belongs charges 4% of its as rates. From the annual income of the apartment $\frac{5}{36}$ is spent for the color wash of the apartment show that the ratio between the balance of the annual income and the annual come is 3:4.

02. An incomplete table prepared to draw the graph of the function $y = 3 - 2x^2$ is given below.

x	-3	-2	-1	0	1	2	3
y	-15	-5	1	1	-5	-15

- (a). i. Find the value of y, when $x = 0$ (01 mark)
- ii. Using the scale of 10 small divisions as one unit along x axis and 10 small divisions as two units along the y - axis, draw the graph of the above function on a graph paper. (04 marks)
- (b). Answer the following questions using the graph.
- i. Write down the co ordinates of the turning point. $y > 2$ (01 marks)
- ii. Write down the interval of values of x for which $y > z$ (02 marks)
- iii. Write down the positive root of the equation $3 - 2x^2 = 0$ (02 marks)

03. (a). Nimali asked for 4 packets of sugar which weighed 1kg each and 3 cakes of soup. When the salesman told that they cost Rs. 575, she left one packet of sugar and one cake of soap. Then the package cost only Rs. 420. Assuming that the cost of one packet of sugar as x and the cost of one cake of soap as y, construct a pair of simultaneous equations and find the value of a packet of sugar and a cake of soap by solving that.

- (b). Solve the inequality $3y - 1 \geq 2$ and find the minimum value that x can take.

04. The following information is about the time duration of watching television by a group of students within a day.

Time (minutes).	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80	80 - 90	90 - 100
Number of students	7	8	5	6	10	8	6

- i). Write down the modal class of this distraction. (01 mark)
- ii). Find the mean time duration of watching television by a child. (02-mark) 5
- iii). What is the probability of a student is who randomly selected out of these student, being a student who watches the television more than 50 minutes. (02 mark)
- iv). ~~Find the mean time~~ ^{Estimate} find the mean time that a child watches the television during a month (30 days) *Geometry* (02 mark)

05. From a mettle corn which has a base of 2.75 radius and the height of 9cm, surface is scraped out and new corn is formed. Radius of the newly formed corn is 1.4 cm and its height is 9 cm. Prove that the removed amount of mettle is $\pi \times 4.15 \times 1.35$ and when $\pi = 3.142$ find its value using the logarithms table.

06. Use only a straight edge with a cm/mm scale and a pair of compasses for the following construction.

Show your construction lines clearly

- i). Construct the parallelogram ABCD where
 $AB = 7\text{cm}$, $\angle B = 120^\circ$ and $BC = 6\text{cm}$
- ii). Mark a point E on the side DC such that 4.5 cm away from D and draw the triangle ABE. (02 marks)
- iii). Prove that area of the triangle ABE = Area of the triangle ADE + Area of the triangle BCE. (04 marks)