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Southern Provincial Department of Education

Year End Test - 2017

Mathematics

Grade 7

Name / Index No. ..... Time - 2hours

Part I

- **Answer all the questions in Part A on this paper itself.**
- **Each question in Part A carries 2 marks. (2 x 20 = 40)**

(01) Find the digital root of 3146

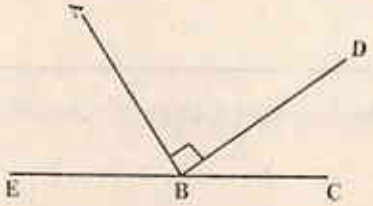
(02) $A = \{2, 3, 5, 7, 11, 13\}$
Write down the set A in terms of a common property of its elements by which the elements can be clearly identified.

(03) Select and write down two numbers which are divisible by 6 without a reminder.
348 , 496 , 288 , 1024

(04) Write $3 \times 3 \times 3 \times X \times X$ in index form.

(05) Express $2\frac{7}{50}$ as a decimal number.

(06) Name an acute angle and an obtuse angle seen in the figure.



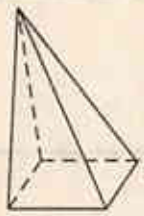
(07) Dinithi's date of birth is 2005-05-22. What is her age on 2017-11-20

(08) Simplify. $17 + 10 \times 4$

(09) Rewrite the numbers in order using the sign $>$ $\frac{1}{2}$, 0 , -3 , 0.1

(10) In a map drawn 1 : 500, the distance represented the road AB is 10cm. Find the actual distance of the road AB in metres.

(11) Simplify. $(-7.57) + (+11.34)$

(12)  Show that the pyramid given satisfies the Euler's relation.

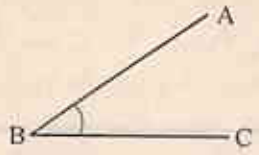
(13) Express 3500ml in litres and mililitres.

(14) Fill in the blanks in the flow diagram given below.

$x \rightarrow \boxed{\times 3} \xrightarrow{3x} \boxed{-5} \xrightarrow{3x-5}$

$\xleftarrow[\ldots\ldots]{x} \boxed{+3} \xleftarrow{3x} \boxed{\ldots\ldots} \xleftarrow[25]{3x-5}$

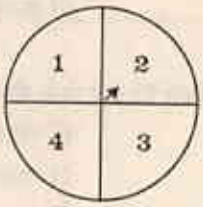
(15) The box 'A' contains items of mass 30kg 350g while the box 'B' contains items of mass 40kg 750g. Find the total mass of the items in both boxes.

(16) 

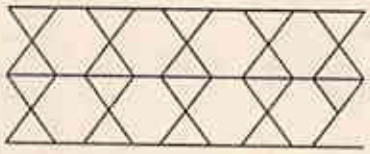
Measure the angle $A\hat{B}C$ and write its magnitude.

(17) A rope of length 20m 16cm is cut into 3 to get 3 equal pieces. What is the length of one piece.

(18) The volume of a cuboid is 120cm^3. If the length is 10cm, find a set of suitable values for breadth and height.

(19) 

A circular disc is made to rotate around its centre. When the disc stops rotating the number indicated by the arrow head is observed. Write the set of all outcomes of this experiment.

(20) 

What kind of tessellation is seen in the figure.

Part II

- **Answer 1st question and 4 other questions.**
- **1st question carries 16 marks and other questions carry 11 each.**

(01) Remind the activity in the lesson 'Parallel straight lines" that you have done under the guidence of your maths teacher.

(i) Name two instances that you can see parallel straight lines in the environment. (2 marks)

(ii) Name two instruments that you used to construct straight parallel lines. (2 marks)

(iii) Using the instruments mentioned in (ii), construct a pair of parallel straight lines and indicate that they are parallel. (3 marks)

(iv) Construct a line indicating the perpendicular height between the pair of parallel lines and name the line as AB. (3 marks)

(v) Construct another perpendicular height 'DC' similar to AB and obtain the rectangle ABCD. (3 marks)

(vi) Join AC in the rectangle ABCD and construct two straight lines through B and D, parallel to AC. (3 marks)

(02) (i) Plot the points given below as an ordered pairs, on a cartesian plane. (4 marks)
A (1 , 1) , B(2 , 4) , C(6, 4) . D(7 , 1)

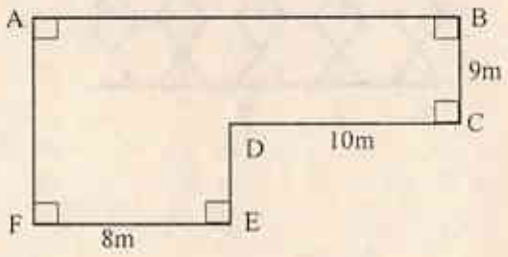
(ii) What is the suitable name that can be given to the closed plane figure obtained by joining the points A, B, C and D respectively. (2 marks)

(iii) Construct the symmetrical axis of the figure. (1 mark)

(iv) Write the coordinates of the point of intersection of x - axis and the symmetrical axis. (2 marks)

(v) If the point 'B' is changed to obtain a parallelogram then what should be the coordinates of the new position of the point 'B'. (2 marks)

(03) ABCDEF is a flat ground.



(i) What is the length of the boundary AB. (1 mark)

(ii) Find the perimeter of the land indicated by ABCDEF. (3 marks)

(iii) Find the area of the land. (4 marks)

(iv) Show that the volume of soil needed to add evenly on the land ABCDEF to make the floor high up to $\frac{1}{2}$ m from the ground level, is 89m^3. (3 marks)

(04) (i) Construct the equilateral triangle ABC of side length 5cm. (3 marks)

(ii) Construct another equilateral triangle named ACD on the side AC. (2 marks)

(iii) What is the most suitable name for the figure obtained ABCD. (1 marks)

(iv) Join BD, Name the point of intersection of AC and BD as O. Using the information in the figure name two obtuse angled triangles and two isosceles triangles. (2 marks)

(v) Construct a circle taking OB as the radius and O as the centre.
What is the length of the radius of the circle drawn. (3 marks)

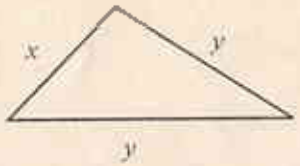
(05) (a) (i) Write 24 and 36 as a product of prime factors and write the answer in index form. Using the answer obtained in (i) or using any other method answer to the question below. (3 marks)

(ii) There are 24 pens and 36 pencils in a box. It is needed to pack them into parcels such that there must be an equal number of pens and an equal number of pencils in each parcel. There is no any pen or any pencil remaining, after packing them in parcels. Find the maximum number of parcels that can be prepared under the condition mentioned above.

(2 marks)

(iii) Two bells ring at intervals of 24 minutes and 36 minutes respectively. If they both rang together at 8.00 am, at what time will they ring together again. (3 marks)

(b)



(i) If the perimeter of the triangle denotes by 'P', construct a formula for 'P'. (1 mark)

(ii) Find P, taking $x = 6$ and $y = 7$ (2 marks)

(06) The following information is about the number of students who participated for the maths - olympaid competitive exam.

	Sinhala Medium	Tamil Medium	English Medium
Boys	50	25	15
Girls	30	15	15

(i) What is the number of boys participated for the exam. (2 marks)

(ii) Find the number of girls participated for the exam as a percentage. (2 marks)

(iii) Represent the information by a suitable multiple column graph. (5 marks)

(iv) If 60 students in sinhala medium, 20 students in tamil medium and 10 students in English medium are selected in the competetive exam,
Find the number of students who are not selected in the exam. (2 marks)

(07) (a)

A	B	C
$2\frac{1}{4}$ m	$1\frac{2}{5}$ m	$3\frac{1}{3}$ m

A, B and C are 3 pieces cut from a wire. The lengths of them are shown above. (the pieces are not drawn to a scale)

(i) Arrange the lengths in ascending order. (2 marks)

(ii) Find the total length of the pieces A and B. (2 marks)

(iii) Find the difference between the maximum length and the minimum length. (2 marks)

(b) A cement misture is made with cement and sand to the ratio 1:6. There are 5 pans in one packet of cement.

(i) Find the amount of sand needed to make a cement misture with one packet of cement. (2 marks)

(ii) A concrete misture is made with cement, sand and metals, to the ratio 1 : 2 : 3. How many packets of cement are needed to make 150 pans of the concrete misture. (3 marks)