Grade 10

REVEALING TEST – 2020

MATHEMATICS - I

Time 1 hour

Name : .....

Caution :

- Part I – A : Answer all the equations. 2 marks are given to each equation
- Part I – B : Answer all the questions. 10 marks are given to each question

Part I - A

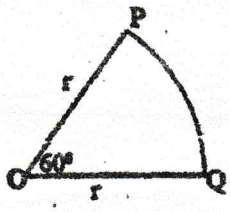
- Answer to all the questions

1) Fill in the blank $(-9) \times \square = 54$

2) What is the value of 3^0?

3) Find the value of $1 - \frac{1}{2}$

4) The radius of a circle is 7cm. Find the circumference of it

5) 

Write an expression for the length of arc PQ

6) Find the factors of $2x^2 - 50$

7) If A = {1, 3, 5, 7, 11}, find n(A)

8) Write suitable value to blank $(x + 3)^2 = x^2 + 6x + \square$

9) Solve the equation $x + 7 = 15$

10) Write $4\frac{5}{10}$ as a decimal number

11) An urban council charges 5% assessment tax of assessed value of a house. The assessment tax per quarter is Rs. 500.

i. Find the annual assessment tax

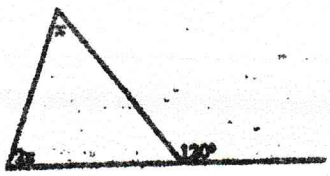
ii. Find the assessed value of the house

12) Find the value of 2^{-4}

13) Find mid value of each below class intervals

i. 35 – 39 = ... ii. 40 – 45 = ...

14) Find the value of x and 2x



15) Find factors $xy + my - x - m$

16) If $a = -2$, $b = -3$ and $c = -1$, find the value of $\frac{a+b+c}{ac}$

17) If $P - 2r = \pi r$, subject r

18) Find the value of $\sqrt{9 \times 16}$

19) Find least common multiple of 8ax, 12bx

20) Solve $2(x-3) = 4$

21) Find 15% of Rs. 8000

22) Simplify $\frac{1}{8ax} - \frac{1}{12bx}$

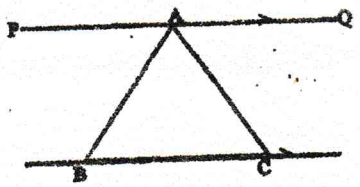
23) Subtract $x + 4y$ from $4x + y$

24) In the triangle ABC, PQ is drawn parallel to BC.
Fill in the blanks

$A\hat{B}C = P\hat{A}B$ (Alternate anglers)

$A\hat{C}B =$ .....

..... + ... + ... = 180°



25) A person borrowed Rs. 30 000 from a finance company which charges 15% annual simple interest rate. Find total interest needed to pay at end of 3 years?

10 Maths - Part I - B

- Answer all the questions

1) Simplify

a) $\left(\frac{1}{3}+\frac{3}{5}\right) \div 1\frac{2}{5}$

b) Mr. Amal spends $\frac{1}{5}$ of his salary to buy food materials and $\frac{1}{2}$ of remain for children's education. Then he deposits his balance Rs. 15 000 in a bank.

i. Write the remain amount after buying food materials as a fraction of whole salary

ii. Write the amount spent for children's education as a fraction of whole salary

iii. What is the part that he remains after spending for food materials and education?

iv. What is Mr. Amal's salary?

v. Find the amount spent for education

2) In the diagram, PQRS is a rectangle.

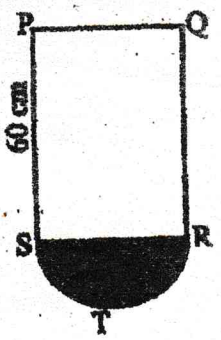
i. If the length of arc RTS is 44 cm, find the radius of semi-circle

ii. Find the length of PQ

iii. Find the area of PQRS

iv. Find the perimeter of whole figure

v. Find the area of whole figure



3) Cement, stones and sand are used in making a concrete mixture. 10% of the mixture is cement and 40% of the mixture is stones. The remaining amount is sand.

i. What is the used sand percentage?

ii. Express the ratio in between stones and sand in the simplest form

iii. Find amount of cement, stones and sand in 200 pans of concrete mixture separately

iv. If A : B = 3 : 2, B : C = 4 : 1, find compound ratio A : B : C

4) a) $\xi = \{a, b, c, d, e, f\}$
$A = \{a, b, c, d, e\}$
$B = \{a, e\}$

i. Show above data in a Venn diagram

ii. Write a relationship in between sets A and B

iii. Shade the region $A \cap B'$

iv. Find $n(A')$

b) Find the probability of not getting a perfect square number when rolling a fair cubic die.

5) a) Marks obtained by 11 children to a mathematics paper are shown in below. (In here, marks are given out of 50)

10 , 32 , 23 , 38 , 22 , 22 , 17 , 37 , 40 , 15 , 13

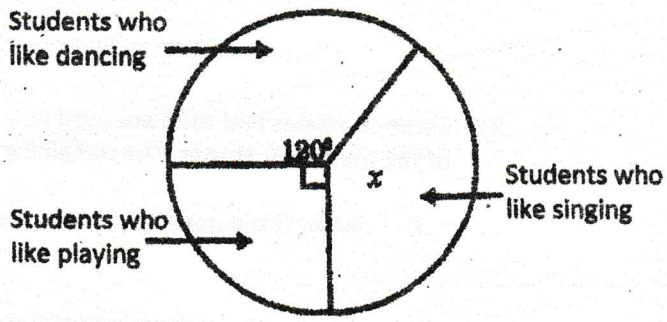
i. Arrange above marks in ascending order

ii. What is the mode of marks?

iii. What is the highest marks obtained by a child?

iv. Find the mean marks obtained by 11 children

b) This pie chart is drawn according to the data obtained by a group of students who are studying aesthetic subject..24 students like to dancing.



i. Find the value of x

ii. How many children do like to singing?

Grade 10

REVEALING TEST – 2020

MATHEMATICS - II

Time 2½ hours

Name : .....

Caution :

- Select 5 questions from part A and 5 questions from part B and answer to 10 questions
- 10 marks are given to each question

Part II - A

1) The value of an imported car without tax is Rs. 900 000. The custom charges 60% duty for this type of cars.

   i. What is the duty charged for the car?
   ii. The sales company who imported this car, marks the price of it by hoping 25% profit. What is the marked price of the car?
   iii. The sales company had to spend Rs. 12 000 for newspaper advertisement which published to sell the car. What is the profit gained by the sales company by selling the car at marked price?
   iv. According to that, find the percentage profit gained by the sales company to nearest whole number

2) a) An incomplete table which is prepared to draw the graph of the function $y = 5 - x^2$ is shown in below.

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

   i. Fill in the blanks in the table
   ii. By taking the scale of 10 small divisions as one unit along both axes x and y, draw the graph of above function.

   b) According to your graph,
   i. Write the maximum value of the function
   ii. Write the axis of symmetry
   iii. Write the x range where function is positive
   iv. Find the roots of the equation $5 - x^2 = 0$

3) a) Solve $\frac{3}{x+1} - \frac{1}{2(x+1)} = \frac{5}{16}$

   b) Complete less term to become below algebraic expressions into perfect square.

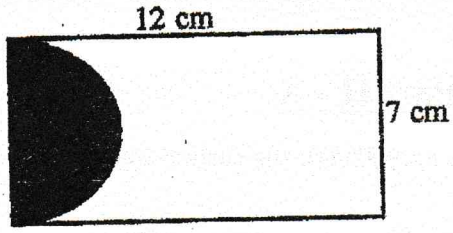
   i. $x^2 - 8x + ...$ ii. $x^2 - ..... + 25$
   iii. Find the value by using the knowledge of factors
   $47^2 - 2 \times 47 - 15$

4) a) Simplify $\left(2\frac{1}{2} + 3\frac{1}{8}\right) \div 1\frac{1}{8}$

b) A father gave $\frac{1}{6}$ of his money to his daughter, and $\frac{1}{5}$ of remain to his son.

i. Find the amount given to son as a fraction of whole money
ii. Find remaining part of father after giving to both daughter and son
iii. If father had Rs. 600 as balance at the end, find the amount that he had initially

5)



The length and breadth of a rectangular sheet are 12 cm and 7 cm respectively. A semi-circular part is removed from it as above diagram.

i. What is the radius of semi-circular part?
ii. Find the arc length of semi-circular part
iii. Find
   a) Perimeter
   b) Area of remaining part of sheet when semi-circular part is removed

6) a) Find the value
   i. $\log_5 125$
   ii. $\log_{10} 500 + \log_{10} 20 - \log_{10} 10$

b) Find the value by using logarithmic tables

$$\frac{25.36 \times 90.32}{13.42 \times 15.75}$$

Part II – B

7) Do below constructions by using only a pair of compasses and a straight edge

i. Construct the triangle ABC such that AB = 8.5cm, BC = 7cm and $A\hat{B}C = 60°$
ii. Construct perpendicular bisector of AB
iii. Construct perpendicular bisectors of BC
iv. Name intersecting point of above perpendicular bisectors as O
v. Construct the circle in which O is the center and OA is radius
vi. Measure and write the radius

8) a) i. Write the general term of the number pattern 4 , 11 , 18 , ...
ii. Which term is 81 in above number pattern?

b) i. Write first three terms of number pattern which general term is $5n + 4$
ii. Show that 100 is not a term in this number pattern

9) a) The sum of two terms is 13. When the second number is subtracted from three times of first number, the answer is 7.

i. By taking one number as x and the other number as y, build up a pair of simultaneous equations.
ii. Solve those pair of simultaneous equations and find two numbers

b) Find factors
i. $x^2 + 3x - 10$
ii. $27x^2 - 3$

10) In the parallelogram ABCD, perpendiculars drawn from B and D to the diagonal AC are BX and DY respectively. BX = DY.

i. Draw a rough sketch to show above details
ii. Show that triangles AYD and BXC are congruent
iii. Show that AX = CY
iv. Write the formal proof of below theorem
"Exterior angle formed when produced a side of a triangle is equal to the sum of two interior opposite angels"

11) i. Find least common multiple of $15y^2$, $20(y + 1)$, $10(y + 1)^2$
ii. Find least common multiple of $2x - 6$, $4x(x - 3)^2$, $6(x^2 - 9)$
iii. Simplify $\frac{1}{(x-1)} + \frac{3}{(x+1)} - \frac{2}{(x^2-1)}$

12) a) Find the time it takes for a train of length 70 m travelling at a uniform speed of 72 kilometers per hour to cross a bridge which is 100 m long

b) The details obtained by observing the motion of a helicopter which travels at a uniform speed are shown in below table.

Time spent (s)	5	10	15	20	25	30	35	40
Distance travelled (m)	100	200	300	400	500	600	700	800

i. Show this data in a distance-time graph
ii. Find the speed of the helicopter