PROVINCIAL DEPARTMENT OF EDUCATION
NORTHERN PROVINCE

2nd Term Examination – 2022

Gradè - 10	MATHEMATICS I	Two Hours

………………………

Name of Student

………………………

Index Number

IMPORTANT
- This question Paper consists **8** pages.
- Write your **index number** correctly in the appropriate places **on this page** and on **page three.**
- Answer the **all** on **questions paper itself.**
- Use the space provided under each question for working and writing the answer.
- Indicate the **relevant steps** and the **correct units** when answering the questions.

  Marks are awarded as follows
  In Part IA
- 2 marks for each questions
  In Part IB
- 10 marks for each questions

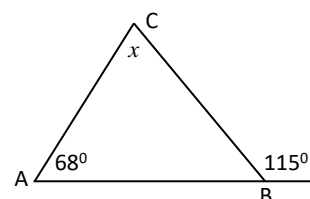| For marking Examinar' use only		
Part	QuestionNumbers	Marks
A	1 − 25	
B	1	
	2	
	3	
	4	
	5	
Total		

Name of Teacher ………….……

Signature of Teacher …………...….

PART A

Answer all questions on this paper itself

1. The bill for the monthly phone usage of a household is 2 500 rupees. 300 rupees is added to this as VAT. Accordingly, find the percentage that is charged as VAT.

2. Find the value of x using the given data in the figure.

3. Value of $\sqrt{34}$ is to lies between in which whole number?

4. Write $4^3 = 64$ in logarithm form.

5. Remove the brackets and simplify. $(x - 4)(x + 7)$

6. Fill in the blanks.

   If two sides and .... of one triangle are equal to two sides and the .... of another triangle, then the two triangle are congruent under the case SAS.

7. Find the coordinates of the straight line $y = 5 - 2x$ intersect the $x-$axis.

8. Underline the correct statement given below.

    (i) $0.8 \times 1.25 > 2.1$

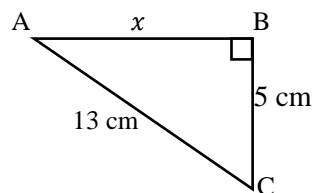   (ii) $0.8 + 1.25 = 2.05$

    (iii) $1.25 \div 0.8 > 3.5$

9. An interior angle of a regular polygon is 140^0.

    Then (i) Find the value of an exterior angle.

          (ii) Find the number of sides.

10. Simplify. $\frac{2x}{x^2-1} - \frac{3}{x-1}$

11. Find the value of x.

A ____ x ____ B

13 cm

5 cm

C

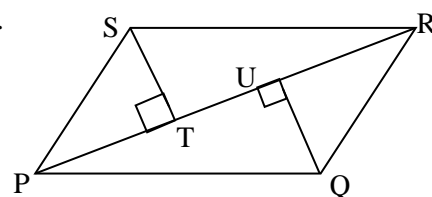12. Find the value of a, b. $(x-4)^2 = x^2 + ax + b$

13. Find the perimeter of a semicircular Lamina with radius 14 cm.

14. In the parallelogram $PQRS$ the perpendiculars drawn to the diagonal PR are ST and QU.

AC is diameter. if $A\hat{B}D = 50°$ find the magnitude of x.

   i. Write the relationship between the areas of the triangles $\Delta PRS, \Delta PQR$

   ii. Which side is equal to the length QU.

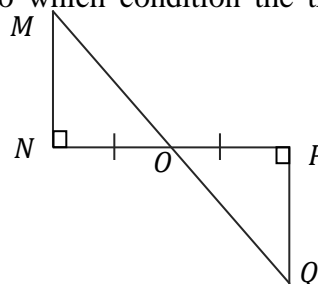15. Subjecting b in the formula $k = \frac{a(b+1)}{4}$.

16. Bearing of B from A is 109^0. Find the bearing of A from B.

17. Find the L.C.M of the following expressions. $3x, 2xy, 4y^2$
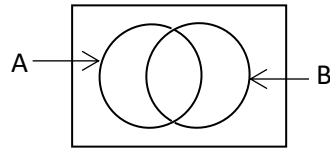
18. A factor of the expression $2x^2 + 7x + 6$ is $(x + 2)$ find the other factor.

19. Digits 2, 2, 3, 3, 4, 4 are written on the six sides of an unbiased die. When the die is tossed find the probability of getting a prime number faced upside.

20. From the given information of the figure. According to which condition the triangles $\Delta MNO, \Delta OPQ$ congruent. Give the reason.

21. Shade $(A \cap B)^1$ on the given diagram.

22. If $x = \frac{1}{2}$ then find the value of $x + \frac{1}{x}$.

23. A motor bike travels at a constant speed of 60ms^{-1}. Find the time taken to travel 2.4 km.

24. Angle of depression of C from A is 50^0. C is situated 20 m from BA. Mark the datas on the following figure.

25. A, B are the fixed points. X is situated on the perpendicular bisector of AB. Such that $AX = 4$ cm. Draw a sketch to show the position of X.

ANSWER ALL QUESTIONS ON THIS PAPER ITSELF.

1. a. Simplify $\left(2\frac{1}{3} - 1\frac{1}{4}\right) \div 6\frac{1}{2}$.

b. In a village $\frac{2}{7}$ of employees are ladies of the government servant. $\frac{1}{7}$ are gents of government servants. $\frac{1}{4}$ of remaining traders and the rest are farmers.

   i)   What fraction of total employees as the government servant?

   ii)   What fraction of total employees as the traders

   iii) If the number of farmers are 600,
        a)   find the number of traders are there?

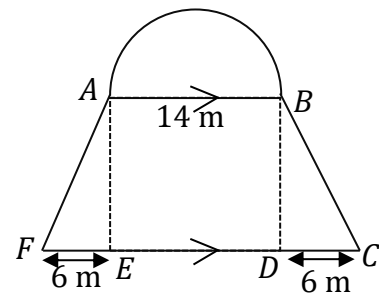   b)   Find the number of government servants who are ladies?

2. The floor plan of a hall constructing a Trapezium and a semi-circular portion is given in the figure. Diameter of the semi-circular portion is 14m where, $FE = BC = 6$ m and $BD = 7$ m

   i.   Find the area of semi-circular portion

   ii.   Calculate the total area of the floor plan

   iii. Find the perimeter of the floor plan

   iv.   They will decide to paint a rectangle portion $ABDE$ as the part of 350 cm side of squares with their measurement on $ABDE$.

3. Ravi, Kumar and Ganeshan started a business. They shared the profit at the end of one year according to the ratio Ravi and Kumar is 3:2 and the Kumaran and Ganesan is 4:5
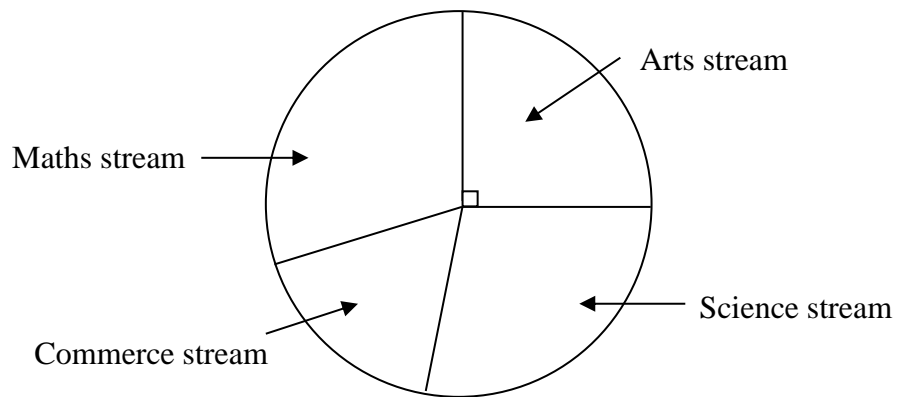
i)   Write the common ratio of Ravi Kumar and Ganesan in the simplest form?

ii)   If Ravi got the perfect more 20,000 than Kumar. Calculate the total profit of this business?

 b)   A vendor sell a bicycle for rupees 12000 at a loss of 20%
i)   Find the purchase price of this bicycle

ii)   If he earns a profit 20% calculate the selling price of this bicycle

4. a) A bag contains 15 identical balls. Marked 1 in five Balls, 2 in one ball, 3 in 2 balls and
       4 in rest. A ball is randomly taken out, find the probabilities of the following
       i)   It has number 1

       ii)   It has not number one

       iii)   It hasn't and even number

       iv)   Ratio between rectangular number and not rectangular number

    b) It has been estimated that six men will take 8 days to complete a certain task. If four more men joined this group after they had worked for 3 days, in how many more days can this task be completed?

5. The following pie chart illustrates the numbers of the students who select the AL streams.

The number of students selected arts is180
The number of students who select science stream is two times who selected commerce stream

i)   Illustrate the above information on the above pie chart

ii)   If the number of students who select science streams is 200 find the number of students for select   commerce   stream?

iii)   Calculate the magnitude of the angle at the centre who select in maths stream?

iv)   Calculate the number of students select in arts stream as the percentage of total number of students