

Ts8M

**Tenkasi District Common Examinations**  
**Common Half Yearly Examination - December 2022**



**Standard 8**  
**MATHEMATICS**

Time: 2.30 Hrs.

Marks: 100

**PART - A****I. Choose the correct answer:****5×1=5**

- 1) Which of these rational numbers which have additive inverse?  
 a) 7                                      b)  $-\frac{5}{7}$                                       c) 0                                      d) all of these
- 2) If  $x^2 - y^2 = 16$  and  $(x+y) = 8$  then  $(x-y)$  is \_\_\_\_\_.  
 a) 8                                      b) 3                                      c) 2                                      d) 1
- 3) The single discount in % which is equivalent to two successive discounts of 20% and 25% is \_\_\_\_\_.  
 a) 40%                                      b) 45%                                      c) 5%                                      d) 22.5%
- 4) If in triangles PQR and XYZ,  $\frac{PQ}{XY} = \frac{QR}{YZ}$ , then they will be similar if \_\_\_\_\_.  
 a)  $\angle Q = \angle Y$                                       b)  $\angle P = \angle Y$                                       c)  $\angle Q = \angle X$                                       d)  $\angle P = \angle Z$
- 5) Two numbers are said to be co-prime numbers if their HCF is \_\_\_\_\_.  
 a) 2                                      b) 3                                      c) 0                                      d) 1

**II. Fill in the blanks:****5×1=5**

- 6) The cube root of  $540 \times 50$  is \_\_\_\_\_.
- 7) A line segment which joins any two points on a circle is a \_\_\_\_\_.
- 8) The linear equation in one variable has \_\_\_\_\_ solution.
- 9) 2 minutes is \_\_\_\_\_% to an hour.
- 10) The medians of a triangle cross each other at \_\_\_\_\_.

**III. Say True or False:****5×1=5**

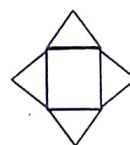
- 11) The rational number which has its own reciprocal is -1.
- 12)  $7ab^3 \div 14ab = 2b^2$
- 13) When the selling price is more than the cost price, then there is a gain or profit?
- 14) In any triangle the centroid and incentre are located inside the triangle.
- 15) There are 12 ways for answering 3 multiple choice questions, with the choices A, B, C and D.

**IV. Match the following:****5×1=5**

- |                                    |                         |
|------------------------------------|-------------------------|
| 16) The perimeter of a semi-circle | - $x = 4$               |
| 17) Area of the quadrant           | - $\pi r^2$             |
| 18) Area of the circle             | - $x = \frac{8}{3}$     |
| 19) $20 = 6x - 4$                  | - $\frac{1}{4} \pi r^2$ |
| 20) $2x - 5 = 3 - x$               | - $(\pi + 2)r$          |

**PART - B****V. Answer any 12 questions:****12×2=24**

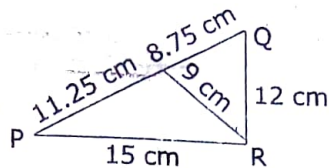
- 21) Compare  $\frac{2}{3}$  and  $\frac{4}{5}$ .
- 22) Evaluate:  $\frac{-5}{8} \times \frac{7}{3}$
- 23) Is 108 a perfect square number?
- 24) The radius of a sector is 21 cm and its central angle is  $120^\circ$ . Find the length of the arc.
- 25) Which 3-D shape do the following net represent? Draw it.
- 26) Multiply  $(2x+5y)$  and  $(3x-4y)$ .
- 27) Expand  $y^2 - 16$  by using  $a^2 - b^2$  identity.
- 28) Solve the equation  $x - 7 = 6$ .
- 29) 48 is 32% of which number?
- 30) A mat of length 180m is made by 15 women in 12 days. How long will it take for 32 women to make a mat of length 512m?



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- 31) Prove that  $\Delta PQR \sim \Delta PRS$  in the following figure.



- 32) Can a right triangle have sides that measure 5 cm, 12 cm and 13 cm?  
 33) Define: Circumcentre  
 34) If you have 2 school bags and 3 water bottles then, in how many different ways can you choose each one of them, while going to school?  
 35) Find the highest common factor (HCF) of 15 and 20.

## PART - C

VI. Answer any 8 questions:

8 × 5 = 40

36) Simplify:  $\left[ \frac{11}{8} \times \left( \frac{-6}{33} \right) \right] + \left[ \frac{1}{3} + \left( \frac{3}{5} + \frac{9}{20} \right) \right] - \left[ \frac{4}{7} \times \frac{-7}{5} \right]$

- 37) Simplify and write the answer in exponential form:

(i)  $(3^5 \div 3^8)^5 \times 3^{-5}$       (ii)  $(-3)^4 \times \left( \frac{5}{3} \right)^4$

- 38) Find the area of the shaded region in the square of side 10 cm as given in the figure.



- 39) Using Euler's formula, find the unknowns.

S.No.	Faces	Vertices	Edges
i)	?	6	14
ii)	8	?	10
iii)	20	10	?

- 40) Factorise the following expressions using  $(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$  identity.  
 (i)  $64x^3 + 144x^2 + 108x + 27$       (ii)  $27p^3 + 54p^2q + 36pq^2 + 8q^3$

- 41) There is a wooden piece of length 2m. A carpenter wants to cut it into two pieces such that the first piece is 40 cm smaller than twice the other piece. What is the length of the smaller piece?

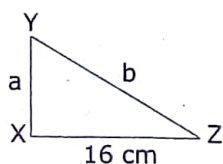
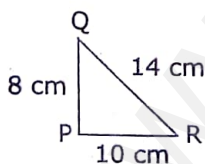
- 42) Find the difference in C.I and S.I for

i)  $P = ₹ 5,000, r = 4\% \text{ p.a}, n = 2 \text{ years}$

ii)  $P = ₹ 8,000, r = 5\% \text{ p.a}, n = 3 \text{ years}$

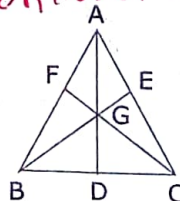
- 43) P and Q can do a piece of work in 12 days and 15 days respectively. P started the work alone and then after 3 days, Q joined him till the work was completed. How long did the work last?

- 44) In the following figure if  $\Delta PQR \sim \Delta XYZ$ , find a and b.



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- 45) ABC is a triangle and G is its centroid. If  $AD = 12 \text{ cm}$ ,  $BC = 8 \text{ cm}$  and  $BE = 9 \text{ cm}$ , find the perimeter of  $\Delta BDG$ .



- 46) Using repeated division method, find the HCF of 455 and 26.

## PART - D

VII. Answer the following questions:

- 47) a) Construct a quadrilateral MIND with  $MI = 3.6 \text{ cm}$ ,  $ND = 4 \text{ cm}$ ,  $MD = 4 \text{ cm}$ ,  $\angle M = 50^\circ$  and  $\angle D = 100^\circ$ . Also find its area. 2 × 8 = 16  
 (OR)  
 b) Construct a rhombus LEAF with  $LE = 6 \text{ cm}$  and  $\angle L = 65^\circ$ . Also find its area.  
 48) a) Draw a straight line by joining the points  $A(-2, 6)$  and  $B(4, -3)$  and also find the intersection of points with the axis.  
 (OR)  
 b) If the points  $P(5, 3)$ ,  $Q(-3, 3)$ ,  $R(-3, -4)$  and  $S$  form a rectangle, then find the co-ordinate of  $S$ .