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TANZANIA HEADS OF SECONDARY SCHOOLS ASSOCIATION
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FORM TWO PRE NATIONAL EXAMINATION
041 Tahossa examination syndicate Tanga city council pre – national examination Tahossa examination syndicate Tanga city council pre – national examination
BASIC MATHEMATICS
TIME: 2 ½ Hours Monday 26th August 2019 am

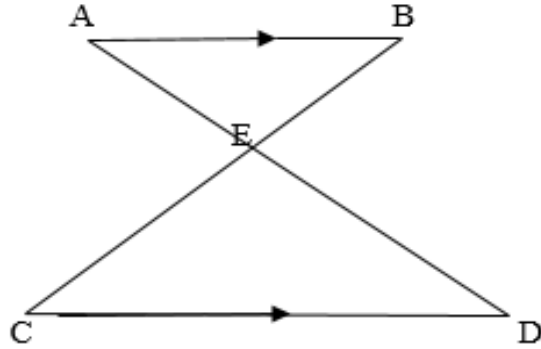
INSTRUCTION:

- Answer all questions
- Mathematical table may be used.
- Cellphone is not required in examination room

- 1) (a) Find the difference between LCM and GCF of the number 21, 35 and 56
 (b) Evaluate $\left(\frac{2}{5} + \frac{3}{10}\right) \times \frac{4}{15} \div \frac{1}{3}$
- 2) (a) Express $0.\dot{0}\dot{8}$ in the form of $\frac{a}{b}$ where a and b are integers.
 (b) Write 1230000g into Kg.
- 3) (a) The operations on an integer P and K is defined as $P * K = PK + 2P - 3K$. Find the value of :
 (i) $3 * 2$
 (ii) If $5 * a = 20$, find the value of a.
 (b) The interior angle of a regular polygon is 120° more than exterior angle. Find:
 (i) The Interior angle and exterior angle
 (ii) The number of sides.
- 4) (a) If $a : b = 4 : 9$ and $a : c = 3 : 7$. Evaluate $a : c$.
 (b) Given that $x - 2 + y = 0$; Determine
 (i) Slope
 (ii) Y - intercept
 (iii) X - intercept
- 5) (a) Solve the following simultaneous equation:

$$\begin{cases} x = 4 - \frac{3}{2}y \\ -3x + \frac{y}{2} = 1 \end{cases}$$

 (b) Solve the inequality $|x + 5| \geq \frac{1}{2}$ and then represent your answer in number line.
- 6) (a) Rationalize the denominator of the expression $\frac{5}{1 + \sqrt{2}}$
 (b) Solve for x if $\left(\frac{2}{3}\right)^{2x-1} = \left(\frac{3}{2}\right)^{-7}$
- 7) (a) Factorize completely $t^3 - 4t$ and hence use the result concept to find exact value of $(10003)^2 - (9997)^2$
 (b) Find the Value of a if $\log_a 81 - \log_2 32 = -1$
- 8) (a) Find the length of DE in the figure below if AB=30cm, CD=40cm and AE=24 cm.



(b) The translation T maps the point $(-3,2)$ to $(4,2)$. Find where will T maps

- (i) Point $(-3,7)$
- (ii) The origin.

9) (a) Without using Mathematical table evaluate $\frac{\tan 45 + \sin 90}{\tan 30 \cos 30 \sin 30}$.

(b) A ladder 15m long rest against the vertical wall such that foot of the ladder is 6m from the wall on horizontal floor. Find .

- (i) Angle that the ladder makes with wall
- (ii) The height above the floor at a point where the ladder touches the wall.

10) (a) There are 24 men at a meeting, 12 are farmers, 18 are soldiers and 8 are both farmers and soldiers. How many men are soldiers or farmers?

(b) The following table shows the marks which were recorded by 48 form two students in a mathematics test at Zi8mbiri secondary school.

Marks %	40	45	50	55	60	65	70
No of students	6	8	m	5	9	4	3

- (i) Determine the value of m
- (ii) What was the number of students who scored 55% and above.
- (iii) What was the lowest mark?
- (iv) What mark was scored by the majority of this students?
- (v) If 55% was the pass mark how many student failed this test?