

MATHEMATICS PAPER 2 - 2019 KCSE KASSU JOINT MOCK EXAMS (QUESTIONS AND ANSWERS)

SECTION I (50 MARKS)

ANSWER ALL QUESTIONS IN THE SPACES PROVIDED

- Without using logarithm tables or a calculator, solve the equation
 $\log(5x - 4) = \log(x + 2) + \frac{1}{3} \log 27$ (3mks)
- Make y the subject of the formula. (3mks)

$$T = \sqrt{\frac{xy}{z+y}}$$

- A rectangular block has a square base whose side is exactly 8cm. Its height measured to the nearest millimetre is 3.1cm. find in cubic centimetres the greatest possible error in calculating its volume (3mks)
- Evaluate without using mathematical tables. (3mks)

$$\frac{1.7 \times 0.042}{20 \times 0.0034}$$

- Find the value of x in the equation. (3mks)
 $16^{(x+2)} \times 8^{(x+3)} = 2^x$
- Njau, Juma and Kimindiri invested some money in the ratio 5:4:3 respectively. The business realized a profit of Sh 48,000. They shared 50% of the profit equally and the remainder in the ratio of their contributions. Calculate the total amount of money received by Kimindiri. (3mks)
- A triangle PQR is such that PQ is 6CM and QR = 8cm and $\angle PQR = 60^\circ$ Calculate :
 - The length of PR (2mks)
 - The diameter of the circumcircle. (2mks)
- Simplify (3mks)

$$\frac{5}{\sqrt{11} + \sqrt{5}} - \frac{4}{\sqrt{11} - \sqrt{5}}$$

- Find the area bounded by the curve $y = x^3 + 5$, the x axis and lines $x=1$ and $x = 3$ (3mks)
- Expand $(1 + 2x)^7$ up to the term in x^3 . (2mks)
 - Hence use the expansion to estimate the value of $(1.02)^7$ correct to four decimal places. (2 mks)
- A bag contains 2 green balls, 3 red balls and one blue ball. Another bag contains 4 green balls, 5 red balls and 3 blue balls. A ball is chosen at random from a bag. Find the probability that the chosen ball is blue. (3mks)

MARKING SCHEME

1.	$\log \frac{5x-4}{x+2} = \log 3$ $\frac{5x-4}{x+2} = 3$ $5x-4 = 3x+6$ $2x = 10$ $x = 5$	M1 M1 A1	
2.	$T^2 = \frac{xy}{z+y}$ $T^2(z+y) = xy$ $T^2z + T^2y = xy$ $y(x - T^2) = T^2z$ $y = \frac{T^2z}{x - T^2}$	M1 M1 A1	
3	<p>Maximum volume = $64 \times 3.15 = 201.6 \text{cm}^3$ Actual volume = $64 \times 3.1 = 198.4 \text{cm}^3$ Error = $201.6 - 198.4$ $= 3.2 \text{cm}^3$</p>	M1 M1 A1	
4	$\frac{1.7 \times 0.042}{20 \times 0.0034} \times \frac{10000}{10000}$ $= \frac{17 \times 42}{20 \times 34}$ $= 1.05$	M1 A1	
5.	$2^{4(x+2)} \times 2^{3(x+3)} = 2^x$ $4x + 8 + 3x + 9 = x$ $6x = -17$ $x = \frac{-17}{6}$ $= -2\frac{5}{6}$	M1 M1 A1	