DEPARTMENT OF MATHEMATICS

S.3 MATHEMATICS PAPER 256/2

TIME: 2HOURS

INSTRUCTIONS

- Attempt all questions

SECTION A

1. Express 0.23636.....inform of $\frac{a}{b}$ hence deduce the values of a and b. (4mks)

2. Without using tables or calculators, simply $\frac{\sqrt{35}}{\sqrt{7}} + \frac{\sqrt{30}}{\sqrt{6}}$ (4mks)

3. Without using tables or calculators, evaluate $4log_{10}^{2} - log_{10}^{48} + log_{10}^{30}$. (4mks)

4. Given points A (7, -4) and B (15, 2), find the length of $\overrightarrow{AB}$. (4mks)

5. Given the function f(x) $= \frac{4x+3}{x^2-6x+8}$, find the values of x for which f(x) is undefined

6. In a Forex Bureau x, the exchange rates are; \$.1 = Ugs . 2785, £.1 = \$. 3.00. How much pound starlings will a Ugandan trader get from Ush. 4, 570, 185. (4mks)

7. In a class of 10 students, 7 speak English 4 speak French and 2 speak neither of the two languages, find the probability that a student picked at random one language. (4mks)

8. Given that $\frac{(\frac{1}{27})^{\frac{-1}{3}} x\ 81^{\frac{3}{4}}}{3^{-2}} = 3^{x}$ (4mks)

9. Simplify $\left(\frac{\frac{1}{2}}{(\frac{3}{4}+\frac{1}{3})}\right)\ X\ \left(\frac{\frac{2}{5}}{\frac{1}{3}-\frac{2}{4}}\right)$ (4mks)

10. Find the highest common factor and lowest common multiple of 18, 12 and 16

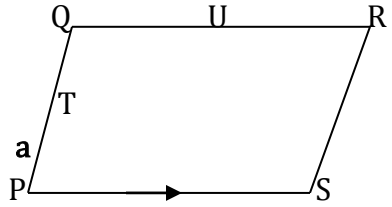
SECTION B

11. In a class, 17 students like mathematics(M), 8 students like Art and mathematics, 9 like physics and Art while 7 like mathematics and physics, 7 students like math only, 1 likes Art only and 6 like physics only.
    (a) If 8 students don't like any subject, how many like;
        (i) All the three subjects
        (ii) At least two subjects

    (b) If a student is picked at random, what is the probability that he or she likes Art?

12. The distance between Kampala and Gulu is 475km. a lorry sets of from Kampala at 8:30am at a steady speed of 50km/hr before it had a breakdown 4 hours later that took 1 ½ hours to rectify. It then proceeded with the journey to Gulu at a steady speed of 100km/hr. at 9:30am; a taxi set of from Gulu and reached Kampala at 1:30pm.
    (a) Represent the journeys of the two vehicles on the same axes.
    (b) At what time and distance from Kampala when the vehicles met.
    (c) Determine the difference in their times of arrive.

13. The diagram below 3 hours a parallel gram PQRS. PT = **a**, PS = **b**, T and U are midpoints of PQ and QR respectively.



    Find the vectors in terms to **a** and **b**
    (i) PS (ii) SQ (iii) PR (iv) TU

END