SIR ARTHUR LEWIS COMMUNITY COLLEGE
End of Semester Examinations
Academic Year 2002 - 2003 - Semester One
Division of Agriculture
Associate Degree in Agriculture
Course : Agriculture Mathematics AGM 511

#M9

Date: Wednesday, December 12, 2002. **Time: 9:00 am** **Duration: 2 hours**

Instructions: Answer all questions

1. (a) Evaluate without using calculators: $\log_3 (81^{1/4} \times 9^{1/2}) / (3^2 \times 27^{2/3})$

   (b) Write as simple quantities without negative indices:

   (i) $1/8^{-2}$ (ii) $(\frac{1}{2})^{-4}$ (iii) $3a^{-2}$

2. Divide : (i) $-8h^3k^3 - 6h^2k^2 + 2h^2k^4 - 4h^4k^2$ by $-2h^2k^2$

   (ii) $12x^2 - 54x + 33$ by $3x - 11$

3. Simplify (i) $x - 3 - 2\{2 - 3(x - y)\}$

   (ii) $[-(m + n) - (3m - 4n)] - [(5m - n) - (9m - 4n)]$

4 Write as simple fractions:

   (i) $5/(4c + 12) - 4/(2c + 6)$

   (ii) $(1/a + 2/b) / (3/5a + 2/b)$

5 Factorize: (i) $24a^3 - 80a^2 + 24a$

(ii $6a^2 - 11a - 35$

(iii) $2 \log a + 2x \log a$

6 (a) Given that $1/p = 1/q - 1/f$ Write an expression for f in terms of p and q.

(b) solve the following: (i) $(x + 3)^{2/3} = 4 ½$

(ii) $5^{(2x+3)} = 150$

(iii) $3/(a+4) - 7/a = -6/a$

(iv) $2m / 3 = 8 / (m + 4)$

(v) $\log_{2y} 36 = 2$

8 A stockman must supply a ration which is 14 % crude protein by weight.(14 % CP). He plans to use a concentrate mix which is 28% CP with bananas which is 4% CP. Best Use of the concentrate is made if each animal is fed a maximum 6 lb of ration per day. What is the optimum amount of concentrate he should supply to a batch of 20 growers per day.

9. Calcium ammonium nitrate is 27% nitrogen by weight and Magnesium Sulphate is 8.4% magnesium by weight. These fertilizer materials are used to supply nitrogen and magnesium respectively to a tomato crop. If the crop requires 184 kg of nitrogen and 18 kg of magnesium per hectare respectively, how much of each fertilizer material is needed to supply a green house measuring 9.6 m x 24 m.