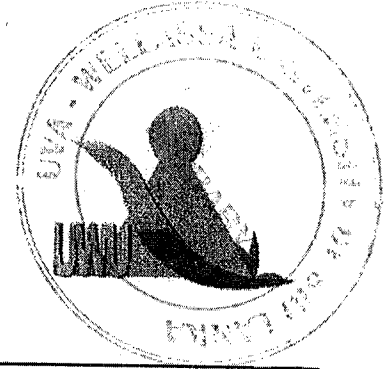




Uwa Wellassa University, Sri Lanka.
End Semester Examination - June 2009
MAT 202-2 General Mathematics



Time : Two (2) hours

Answer all questions.

- 1) State elementary row operations.

(2 marks)

Use matrix row operations to solve following problems.

- a) A daughter inherited Rs120,000 from her father. She is trying to decide how to invest it. She decides to divide the money into three parts. She will invest one part of the money in a safe investment, one part in a relatively safe investment, and the remaining part in a risky investment. One option is to invest the safe part at 6%, the relatively safe part at 7%, and the risky part at 12%. Her anticipated annual profit is Rs11,000. The other option is to invest the safe part at 5%, the relatively safe part at 6.5%, and the risky part at 18%. Her anticipated profit is Rs14,100. How much money did she put into each part of her inheritance.

(18 marks)

- b) The standard equation of a circle is $x^2 + y^2 + Ax + By + C = 0$, Find the equation of the circle that passes through the points (3, -1), (-2, 4) and (6, 8).

(Hint:- Derive simple set of linear equations)

(18 marks)

- 2) In Linear Programming (LP), Explain the word "Linear".

(2 marks)

- a) A firm makes both regular and deluxe model battery. Each battery has 1 plastic casing. The regular model can be assembled in 10 minutes, while deluxe model takes 15 minutes. The firm must produce at least 120 regular and 150 deluxe batteries. It has 300 plastic cases on hand and 8 employees in the assemble department, each of whom works an 8 hour-day. Find possible combinations of batteries today by using concepts in linear programming.

(18 marks)