King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics

Math 131 (Term 143)

Exam 2 (Duration: 90 minutes)

Student Name_____ **Student ID:** _____

Question	Score
1	\10
2	\20
3	\20
4	\20
5	\10
6	\20
Total Score	\100

Exercise 1 (10 points)

An investor has a choice of investing money at 6% compounded daily or 6.125% compounded quarterly. Which one is the best choice?

Exercise 2 (20 points)

A debt of 7,000 SR due in five years is to be repaid by a payment of 2,000 SR now, a second payment at the end of two years, a third payment of 1,000 SR at the end of four years. How much the second payment should be if the interest rate is 8% compounded quarterly?

Exercise 3 (20 points)

A machine is purchased for $3000 down payment along with payments of $250 at the end of every six months for six years. If interest is at 8% compounded semiannually, find the corresponding cash price of the machine.

Exercise 4 (20 points)

A paper company is considering the purchase of a forest that is estimated to yield an annual return of $60,000 for 8 years, after which the forest will have no value. The company wants to earn 6% on its investment and also set up a sinking fund to replace the purchase price. If money is placed in the fund at the end of each year and earns 4% compounded annually, find the price the company should pay for the forest.

Exercise 5 (10 points)

A European car manufacturer has three series of cars A, E, and R. Each car it makes potentially comes in a luxury (L) and a sport (S) trim package, with either an automatic (A) or manual (M) transmission, and a 2-, 3-, or 5-litre engine. For example, the manufacturer names, the RSM5 and the ELA3. How many models can the manufacturer, name using these criteria?

Exercise 6 (20 points)

A coin is tossed 6 times and the resulting sequence of heads and tails is recoded (e.g., HHTHTT).

(a) How many sequences have exactly 4 tails?

(b) How many sequences have at most 4 tails?

(c) How many sequences have at least 4 tails?