



MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER

SCHOOL OF BUSINESS & ECONOMICS

**BACHELOR OF SCIENCE IN ECONOMICS
BACHELOR OF SCIENCE IN ECONOMICS &
STATISTICS**

**BACHELOR OF SCIENCE IN FINANCIAL
ECONOMICS**

COURSE CODE: ECO 3103

COURSE TITLE: ADVANCED MICROECONOMICS

DATE: 30TH MARCH, 2022

TIME: 1100-1300

INSTRUCTIONS TO CANDIDATES

1. Answer Question **ONE** and any other **THREE** questions

QUESTION ONE

- (a) Explain the problems associated with the core of an economy. **5 marks**
- (b) Discuss any two ways of controlling externality. **5 marks**
- (c) Using an appropriate example, state and explain the incentive problem in moral hazard. **10 marks**
- (d) Show that in multi-asset pricing, all assets with a certain return must have the same return. **5 marks**

QUESTION TWO

Professor P has hired a teaching assistant, Mr A. Professor P cares about how many hours that Mr. A teaches and about how much she has to pay him. Professor P wants to maximize her payoff function, $x - s$, where x is the number of hours taught by Mr. A and s is the total wages she pays him. If Mr. A teaches for x hours and is paid s , his utility is $s - c(x)$ where $c(x) = x^2/2$. Mr. A's reservation utility is zero.

- (a) If Professor P chooses x and s to maximize her utility subject to the constraint that Mr. A is willing to work for her, how much teaching will Mr. A be doing? **7 marks**
- (b) How much will Professor P have to pay Mr. A to get him to do this amount teaching? **2 marks**
- (c) Suppose that Professor P uses a scheme of the following kind to get Mr. A to work for her. Professor P sets a wage schedule of the form $s(x) = ax + b$ and lets Mr. A choose the number of hours that he wants to work. What values of a and b should Professor P choose so as to maximize her payoff function? Could Professor P achieve a higher payoff if she were able to use a wage schedule of more general functional form? **6 marks**

QUESTION THREE

Suppose that two agents are deciding how fast to drive their cars. Agent i chooses speed x_i and gets utility $u_i(x_i)$ from this choice; we assume that $u_i(x_i) > 0$. However, the faster the agents drive, the more likely it is that they are involved in a mutual accident. Let $p(x_1, x_2)$ be the probability of an accident, assumed to be increasing in each argument, and let $c_i > 0$ be the cost that the accident imposes on agent i . Assume that each agent's utility is linear in money.

(a) Show that each agent has an incentive to drive too fast from the social point of view. **4 marks**

(b) If agent i is fined an amount t_i in the case of an accident, how large should t_i be to internalize the externality? **3 marks**

(c) If the optimal fines are being used, what are the total costs, including fines, paid by the agents? How does this compare to the total cost of the accident? **4 marks**

(d) Suppose now that agent i gets utility $u_i(x)$ only if there is no accident. What is the appropriate fine in this case? **4 marks**

QUESTION FOUR

(a) Consider two agents with identical, strictly convex preferences and equal endowments. Describe the core of this economy and illustrate it in an Edgeworth box. **6 marks**

(b) What is the Capital Asset Pricing Model (CAPM)? **2 marks**

(c) Derive the Capital Asset Pricing Model. **7 marks**

QUESTION FIVE

Make brief notes on the following:

(a) Hidden Action Problem. **5 marks**

(b) Hidden Information Problem. **5 marks**

(c) Missing markets. **5 marks**

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