UNIVERSITY OF YORK

BA and BSc Degree Examinations
DEPARTMENT OF ECONOMICS AND RELATED STUDIES
ECO00001I MICROECONOMICS II
SECOND SPECIMEN EXAMINATION PAPER
The first 17 questions

Time allowed: THREE hours

Please use the answer sheets attached to the examination paper. Students should not bring their own electronic calculators; standard university electronic calculators will be provided at each desk.

Please note the existence of the *Aide-Memoire* towards the end of this examination paper. You will find this essential when answering questions 9 through to 16.

There are 27 questions in sets of various sizes – the first 17 of which are here. Each set of questions is preceded by a *preamble*, which remains in force until the next *preamble*. Four marks are awarded for each correct answer and one mark will be deducted for each wrong answer. The resulting mark, denoted by x will be between -27 and 108. It will then be converted into a final mark for this module y using the formula $y = (x+27)/1.35$, which ensures that the final mark will lie between 0 and 100.

Preamble: Consider a market for a hypothetical good in which there are a number of buyers and sellers, each of which wants to buy or sell one unit of the good. There are 6 buyers and their reservation prices are 5, 11, 10, 6, 12 and 7. There are 5 sellers and their reservation prices are 9, 10, 5, 6 and 4.

Question 1: What is the maximum surplus realisable in the market?
(A) 16
(B) 20
(C) 18
(D) 12
(E) 14

Question 2: What is the maximum number of trades possible (not necessarily with the same price)?
(A) 7
(B) 6
(C) 3
(D) 4
(E) 5

Question 3: If the buyers grouped together and chose a single price which maximised their total buyer surplus, what price would they choose (assuming that any seller indifferent between selling and not selling actually sells)?
(A) 4
(B) 6
(C) 0
(D) 1
(E) 5

Question 4: If the sellers grouped together and chose a single price which maximised their total seller surplus, what price would they choose (assuming that any buyer indifferent between buying and not buying actually buys)?

Ⓐ 12
Ⓑ 9
Ⓒ 10
Ⓓ 11
Ⓔ 13

Preamble: Consider an individual with quasi-linear preferences whose indifference curve between money (on the vertical axis) and the quantity of a DISCRETE good (on the horizontal axis) is as given in Figure 1 attached to this paper. Suppose the individual starts with an endowment at the point marked X in the figure. Suppose there is a market in which the DISCRETE good can be sold or bought at a fixed price. Suppose the price at the moment is 32. (You might like to know that the equation of the curve is $m = 60/q$ where m and q are the variables on the vertical and horizontal axes respectively.)

Question 5: State whether the individual will be a buyer or a seller and how many units he or she will buy or sell at this price.

Ⓐ buy 2
Ⓑ buy 1
Ⓒ do nothing
Ⓓ Sell 2
Ⓔ sell 1

Question 6: What will the individual's surplus be at this price?

Ⓐ 22
Ⓑ 0
Ⓒ 24
Ⓓ 12
Ⓔ 10

Preamble: Consider an individual with quasi-linear preferences whose indifference curves between money (on the vertical axis) and the quantity of a CONTINUOUS good (on the horizontal axis) are as given Figure 2 attached to this paper. Suppose the individual starts with an endowment at the point marked X in the figure. Suppose there is a market in which the CONTINUOUS good can be sold or bought at a fixed price. Also inserted in the figure are the budget lines for 4 different prices. Suppose the price is such that the individual's optimal decision is to buy 2 units. (You might like to know that the equation of the curve is $m = 60/q$ where m and q are the variables on the vertical and horizontal axes respectively.)

Question 7: What approximately is the price in the market?

Ⓐ 15
Ⓑ 20
Ⓒ 0
Ⓓ 2.4
Ⓔ 3.7

Question 8: What approximately is the individual's surplus at this price?

Ⓐ 16
Ⓑ -2

Preamble: Consider an individual whose preferences are either Perfect Substitutes, Perfect Complements or Cobb-Douglas with parameter *a*, allocating a given endowment between two goods whose prices are *p* and 1 respectively. The individual's endowments of the two goods are 15 and 7 respectively. In the first situation the price *p* of Good 1 was 0.5 and the individual chose to consume 14½of Good 1 and 7¼ of Good 2. In the second situation the price *p* of Good 1 was 1 and the individual chose to consume 14⅔ of Good 1 and 7⅓ of Good 2.

Question 9: What are the individual's preferences?
Ⓐ Perfect Complements
Ⓑ There can never be enough information to tell
Ⓒ Perfect Substitutes
Ⓓ There is not enough information to tell
Ⓔ Cobb-Douglas

Question 10: What is the value of the parameter *a*?
Ⓐ ½
Ⓑ 3
Ⓒ ⅓
Ⓓ 1
Ⓔ 2

Preamble: Consider an individual whose preferences are either Perfect Substitutes, Perfect Complements or Cobb-Douglas with parameter a, allocating a given monetary income between two goods whose prices are p and 1 respectively. The individual's endowment of money is 117. In the first situation the price *p* of Good 1 was 2 and the individual chose to consume 10 of Good 1 and 97 of Good 2. In the second situation the price *p* of Good 1 was 3 and the individual chose to consume 0 of Good 1 and 117 of Good 2.

Question 11: What are the individual's preferences?
Ⓐ There can never be enough information to tell
Ⓑ Cobb-Douglas
Ⓒ There is not enough information to tell
Ⓓ Perfect Complements
Ⓔ Perfect Substitutes

Question 12: What is the value of the parameter *a*?
Ⓐ 2
Ⓑ 3
Ⓒ ⅓
Ⓓ 1
Ⓔ ½

Preamble: Consider competitive exchange of two goods, Good 1 and Good 2, between two Individuals A and B. A starts with an endowment of 12 units of Good 1 and none of Good 2. B starts with an endowment of 12 units of Good 2 and none of Good 1. Individual A has Perfect Complement Preferences

with a parameter 1. Individual B has Cobb-Douglas Preferences with a parameter 0.5. (In answering this question you should note a convention that we use here: in order for a situation to be termed a competitive equilibrium we require that both individuals are STRICTLY better off than with they were with their initial endowments.)

Question 13: Determine whether a competitive equilibrium exists, and if so, determine the competitive equilibrium exchange rate.
Ⓐ Yes: exchange rate of 2 of good 1 for 1 of Good 2
Ⓑ Yes: exchange rate of 1 of good 1 for 1 of Good 2
Ⓒ There is no competitive equilibrium
Ⓓ There is not enough information to tell.
Ⓔ Yes: exchange rate of 3 of good 1 for 2 of Good 2

Question 14: If a competitive equilibrium exists, how many units of good 1 are exchanged?
Ⓐ 6
Ⓑ 4
Ⓒ There is no competitive equilibrium
Ⓓ There is not enough information to tell
Ⓔ 3

Question 15: If a competitive equilibrium exists, how many units of good 2 are exchanged?
Ⓐ There is not enough information to tell
Ⓑ 2
Ⓒ There is no competitive equilibrium
Ⓓ 6
Ⓔ 4

Question 16: Would dividing EQUALLY the initial endowments of the two goods be an efficient way of finally allocating the two goods to the two individuals?
Ⓐ There can never be enough information to tell
Ⓑ There is not enough information to tell
Ⓒ No
Ⓓ Yes

Preamble: Consider a perfectly competitive firm with a quadratic cost function $C(q) = a + bq + cq^2$ where the parameters a, b and c are given below (note that the firm has to incur its fixed cost a whether it produces any output or not). Suppose that the given price for its output is 11. The value of a is 18, the value of b is 3, and the value of c is 1.

Question 17: What is its profit maximising (loss minimising) output?
Ⓐ 4
Ⓑ 16
Ⓒ 20
Ⓓ 8
Ⓔ 12

Aide-Memoire on Functions and their parameterisations

Perfect Substitutes with parameter *a*: $u(q_1, q_2) = q_1 + q_2 / a$

Perfect Complements with parameter *a*: $u(q_1, q_2) = \min(q_1, q_2 / a)$

Cobb-Douglas with parameter *a*: $u(q_1, q_2) = q_1^a q_2^{1-a}$
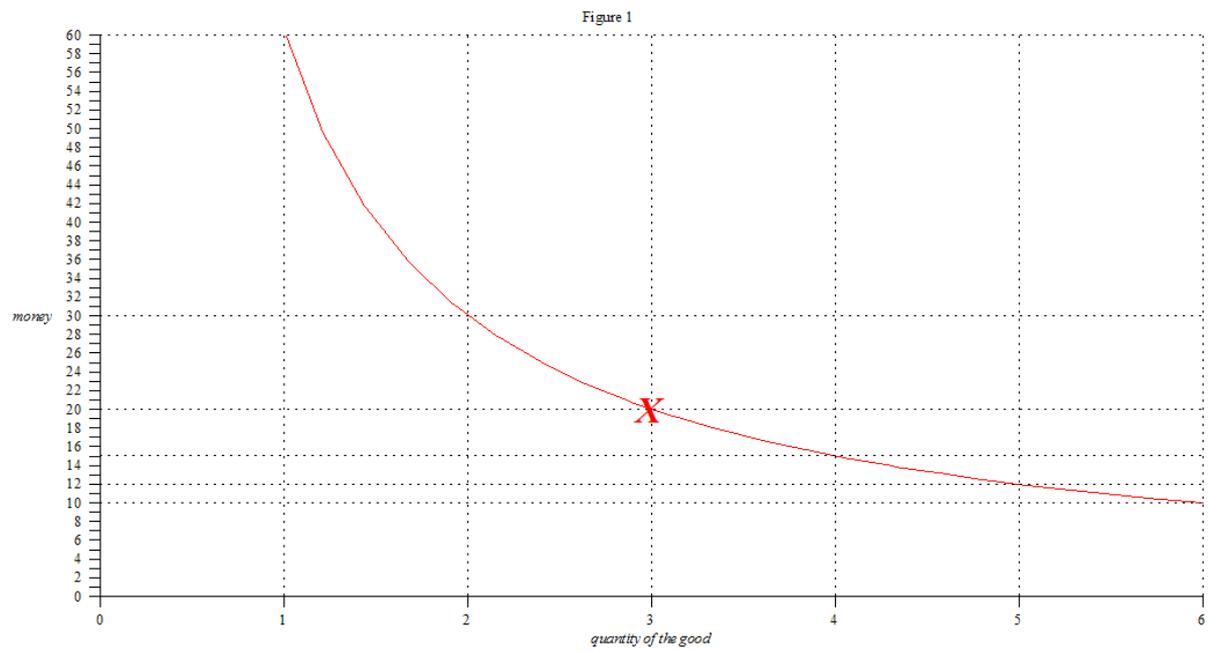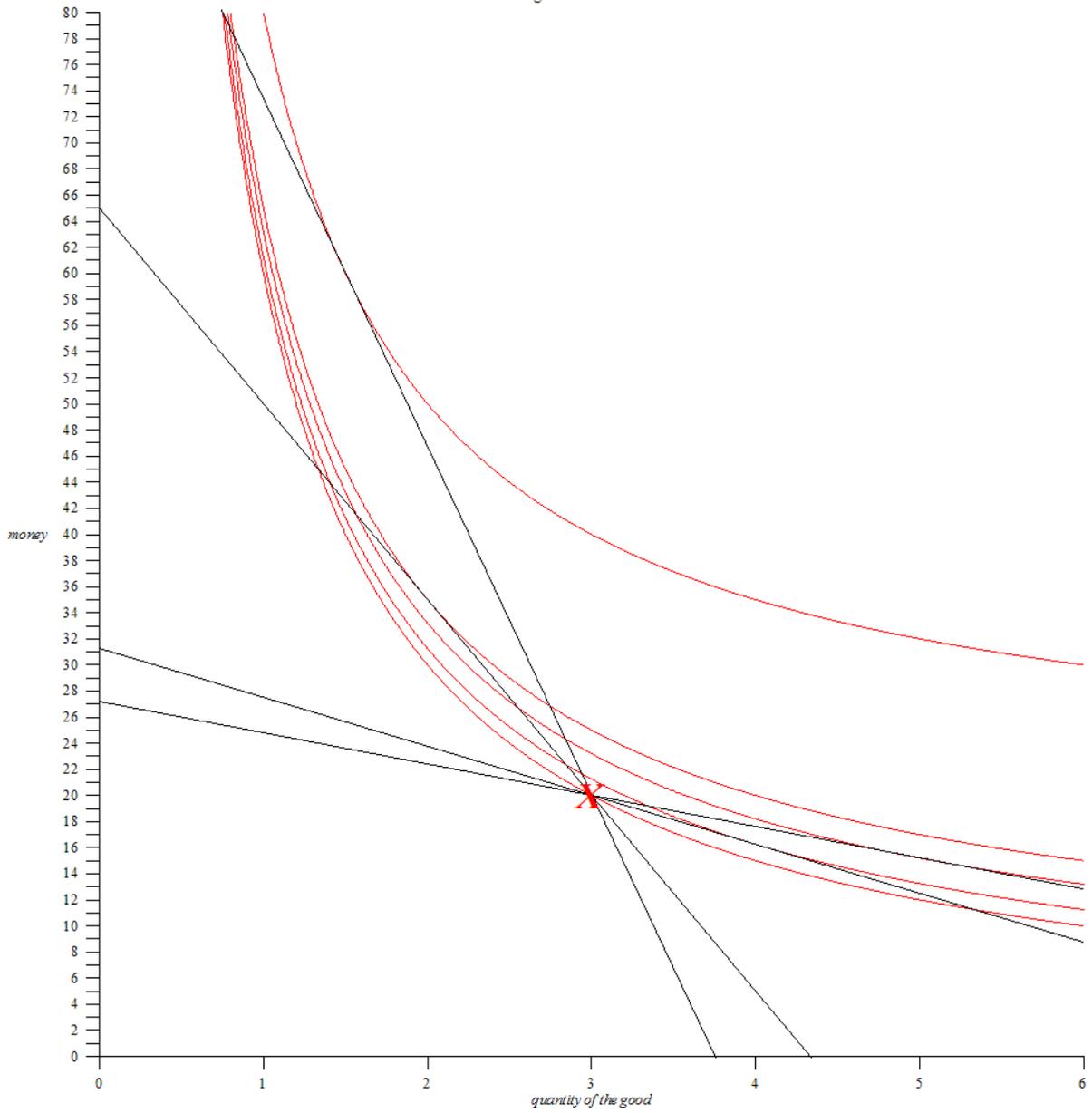

Figure 1

money (y-axis), *quantity of the good* (x-axis)

Figure 2

Table for questions 25 and 26		Individual B		
		Column 1	Column 2	Column 3
Individual A	Row 1	[10,39]	[35,31]	[38,20]
	Row 2	[33,5]	[37,50]	[45,39]
	Row 3	[34,40]	[2,23]	[5,20]