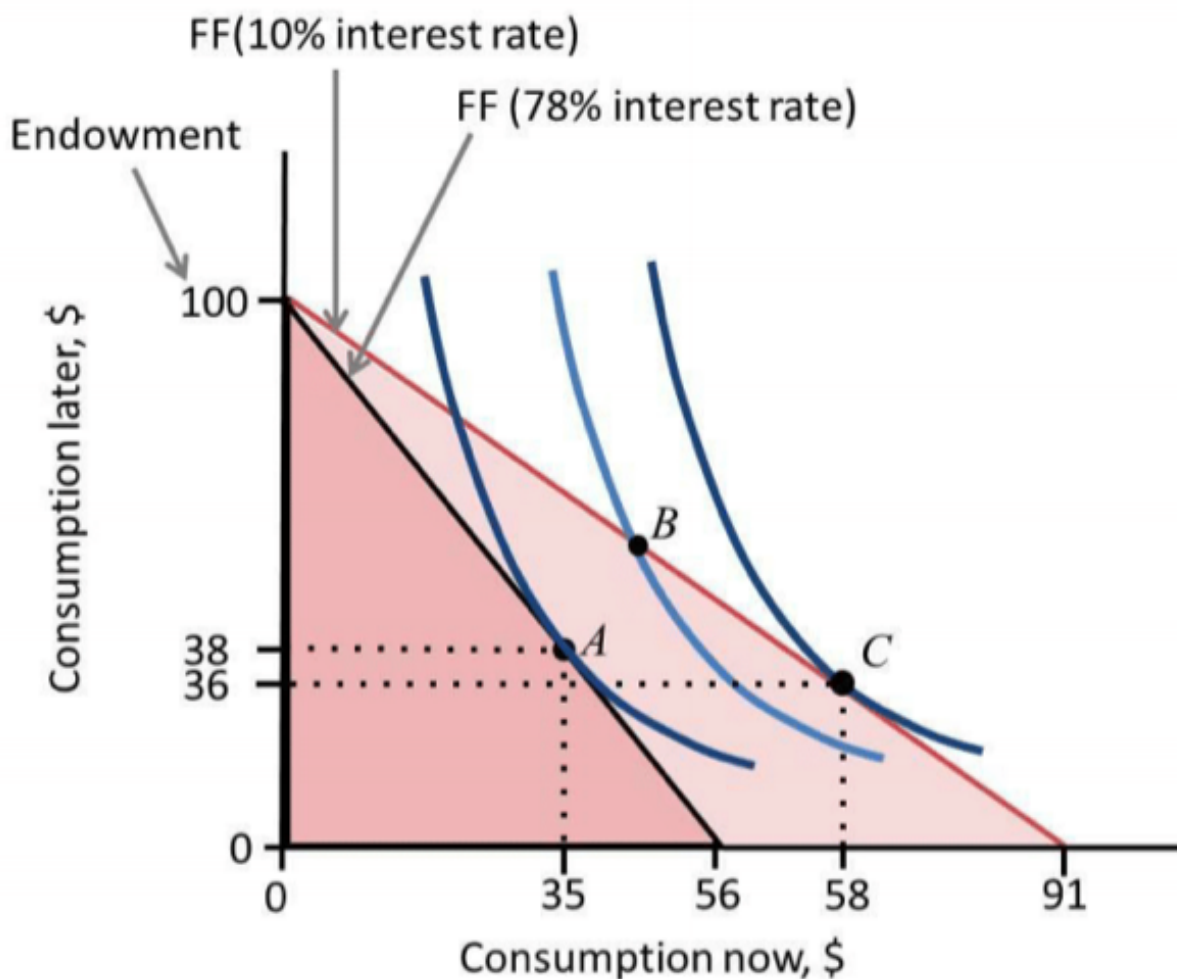# ECON 2002.01 PROBLEM SET 6

Unit 10
Hui-Jun Chen

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① (OUP-U10-Q2) Which of the following statements is correct? _____

    (A)   Human capital is the physical capital owned by humans.

    (B)   Wealth and income are both stock variables.

    (C)   Depreciation is a flow variable.

    (D)   Net income is before-tax income minus tax.

② (OUP-U10-Q8) The diagram depicts Mary's choice of consumptions in periods 1 and 2. She has no income in period 1 and an income of $100 in period 2. In scenario 1 the interest rate is 78%, while in scenario 2 it falls to 10%. Based on this information, which of the following statements is correct?

FF(10% interest rate)

FF (78% interest rate)

Endowment

Consumption later, $

100

38
36

0

0   35   56   58   91

Consumption now, $

B

A   C

_____

(A) In scenario 1, Mary is better off choosing B than A.

(B) The substitution and income effects of the interest rate fall work in the opposite directions for consumption in period 2.

(C) The fall in the interest rate always results in a rise in consumption in both periods.

(D) Mary is more impatient at her optimal choice after the interest rate fall.

③ (OUP-U10-Q15) The diagram depicts Marco's choice of consumptions in periods 1 and 2. He has $100 worth of grain in period 1 and no income in period 2. Marco decides to consume $65 worth of grain in period 1, sell the remaining grain and lend the money at an interest rate of 10%, which he uses to buy grain

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for his consumption in period 2 (point A). Which of the following statements regarding his balance sheet is correct?

_____
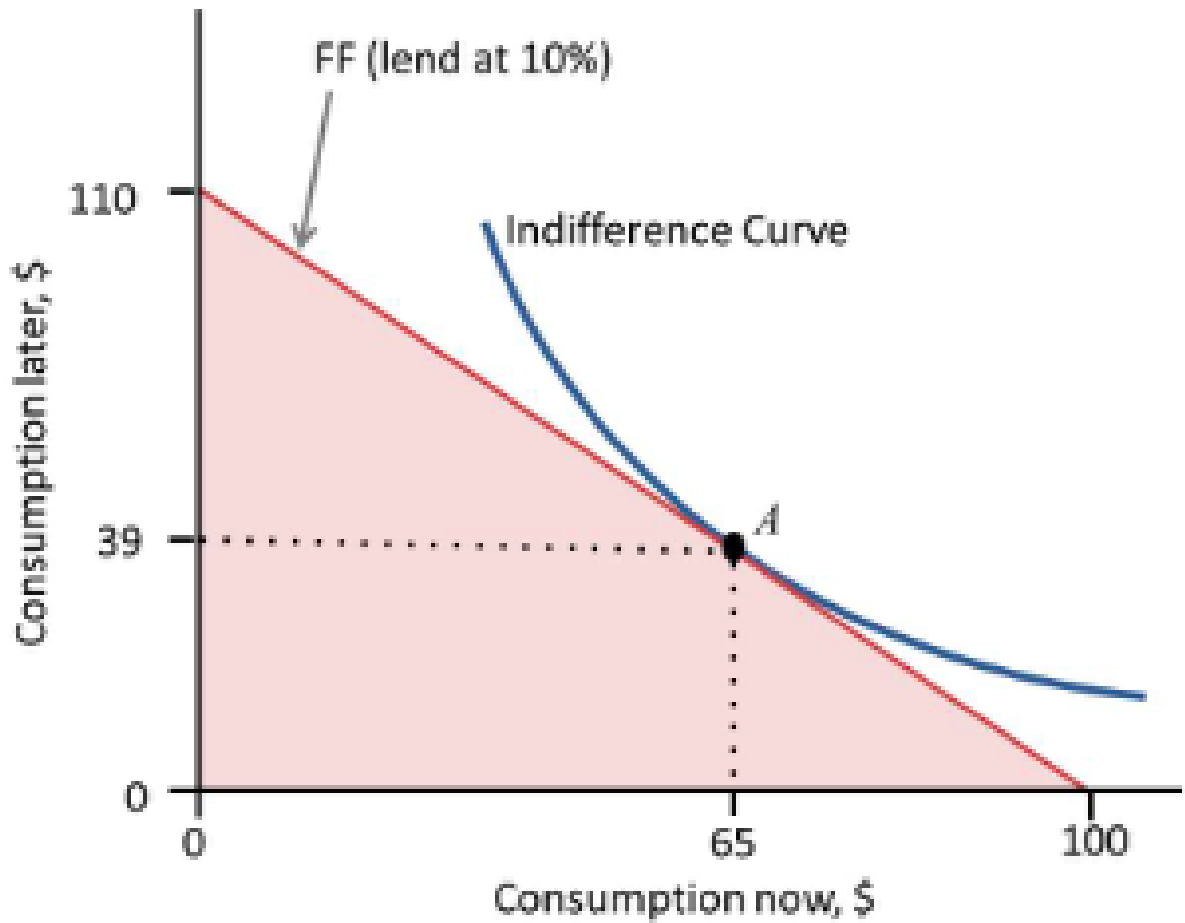
(A) The asset after lending but before consumption is $65.

(B) The asset after consumption in period 1 is $39.

(C) The net worth before consumption in period 2 is $0.

(D) Marco's liabilities remain at 0 at all times.

④ (OUP-U10-Q20) Which of the following statements is correct? _____

(A) If the annually compounding interest rate is 5%, then the present value of £100 in two years' time is £90.91.

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(B) If the annually compounding interest rate is 5%, then the total present value (in Year 0) of receiving £100 at the end of Year 1 and £100 at the end of Year 2 is £185.94.

(C) £95 today is worth the same as £100 in one year's time if the interest rate is 5%.

(D) If you pay £96 for an investment that pays £100 in one year's time when the interest rate is 5%, then your net present value is £0.76.

⑤ (OUP-U10-Q23) The following is a simplified balance sheet of a commercial bank. Based on this information, which of the following statements is correct?

| Assets		Liabilities	
Cash and reserves	£4m	Deposits	£54m
Financial assets	£30m	Secured borrowing	£36m
Loans to other banks	£12m	Unsecured borrowing	£24m
Loans to households and firms	£60m		
Fixed assets	£14m		
Total assets	£120m	Total liabilities	£114m

_____

(A) £34 million of the assets are owned by the bank.

(B) The value of the bank's equity is £120 million.

(C) The bank's leverage ratio is 95.

(D) A fall of over 5% in the asset value would make the bank insolvent.

⑥ (OUP-U10-Q12) The diagram depicts Marco's choice of consumptions in periods 1 and 2. He has $100 worth of grain in period 1 and no income in period 2. Marco has two choices. In scheme 1, he can sell the grain that he does not consume and lend the money at 10%. In scheme 2, he can invest the grain that he does not consume (e.g. planting as seed) for a return of 50%. Which of the following statements is correct?
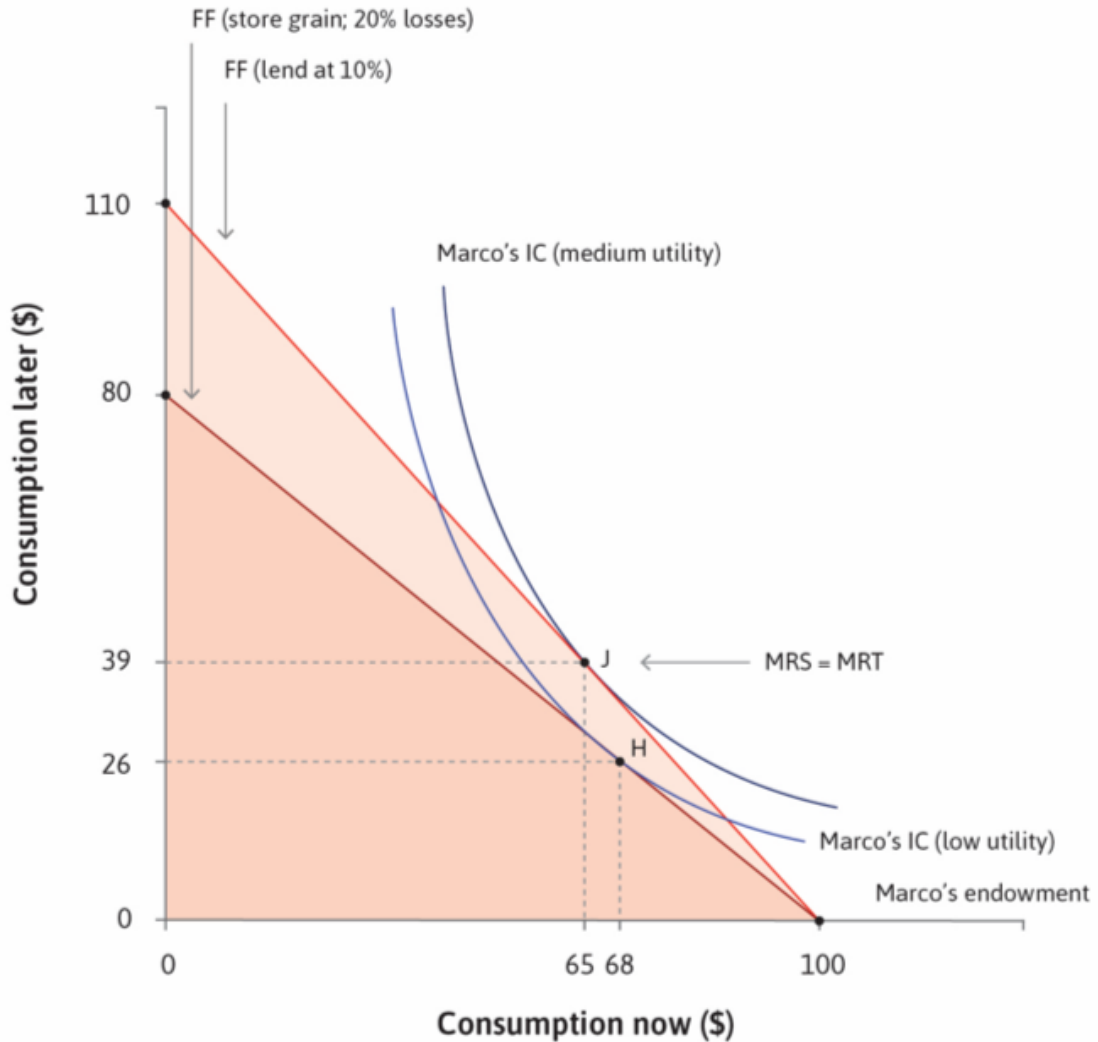
4

FF(lend at 10%)

FF (invest at 50%)

Consumption later, $

Consumption now, $

_____
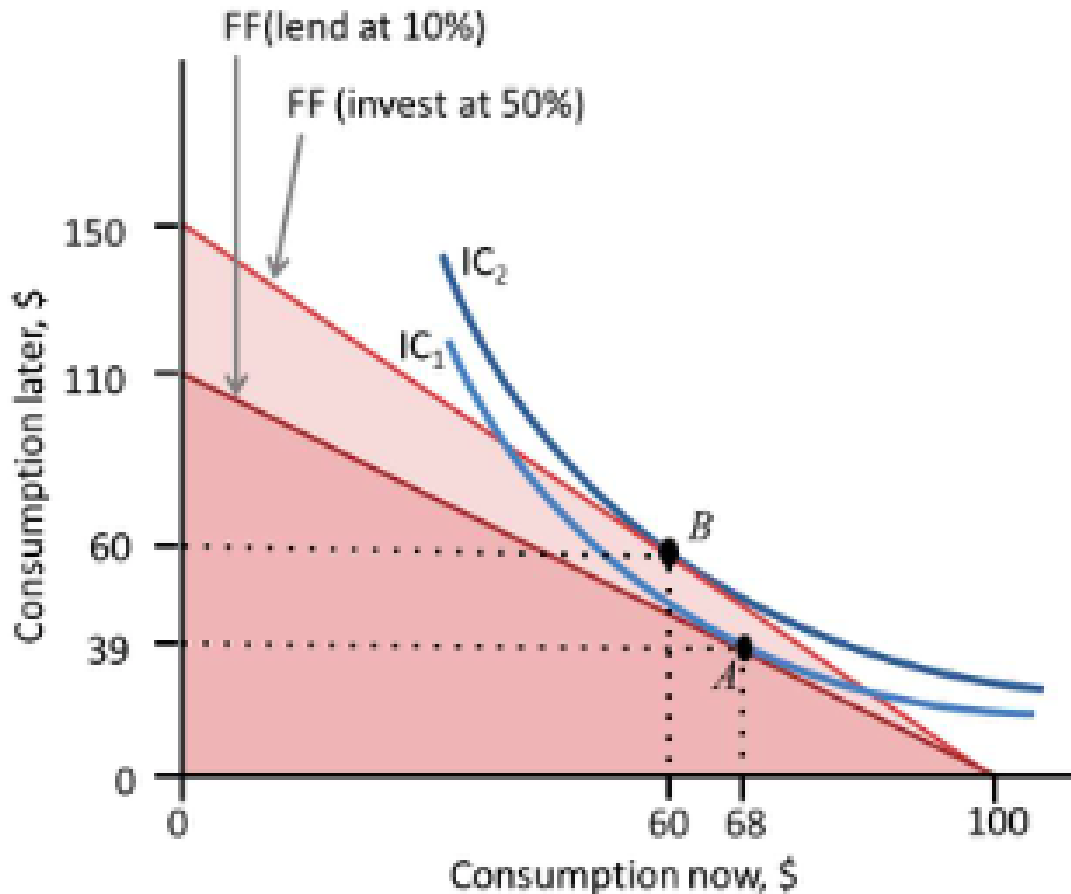
(A) Marco is less impatient at B than at A.

(B) Going from scheme 1 to scheme 2, the substitution and income effects have opposite effects on period 2 consumption.

(C) Marco can do better than consumption choice B by investing all of his grain and consuming the output in period 2.

(D) Marco can do better than consumption choice B by investing all of his grain and borrowing against his period 2 output.

⑦ (TEA-U10-Q2) The following diagram depicts Julia's choice of consumption now and consumption later (next period). She has no income now and an income of $115 later. The current interest rate is 15%. Based on this information, which of the following statements is correct?

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Julia's status quo

Feasible consumption frontier (15% interest rate)

Consumption later ($) / Consumption now ($)
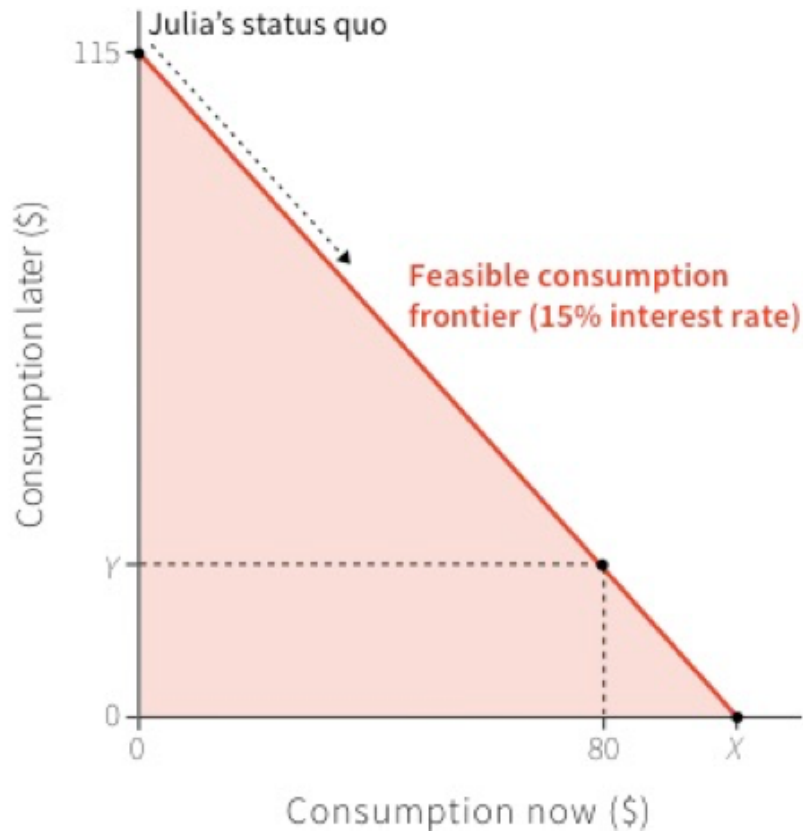
(A) The maximum that Julia can borrow to spend now is $91.

(B) If Julia borrows $80 to spend now, she will have $23 to spend later.

(C) The consumption choice of $60 now and $50 later is a feasible option.

(D) The feasible set will be smaller when the interest rate is 10%.

⑧ (TEA-U10-Q5) The diagram depicts Marco's choice of consumptions now and later (next period). He has $100 worth of grain now and no income later. Marco has two choices. In scheme 1, he can store the grain that he does not consume now. This results in a loss of 20% of the grain due to pests and rotting. In scheme 2, he can sell the grain that he does not consume and lend the money at 10%. Based on this information, which of the following statements is correct?

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FF (store grain; 20% losses)
FF (lend at 10%)
Marco's IC (medium utility)
MRS = MRT
Marco's IC (low utility)
Marco's endowment
Consumption later ($)
Consumption now ($)

(A)   The substitution effect implies that Marco will consume more now under scheme 2 than under scheme 1.

(B)   The income effect implies that Marco will consume more later and less now under scheme 2 than under scheme 1.

(C)   Marco will unambiguously consume more later under scheme 2 than in scheme 1.

(D)   Marco will unambiguously consume less now under scheme 2 than in scheme 1.

⑨ (UCL-S16-Q6) The following diagram depicts Julia's choice of consumption in periods 1 and 2. She has no income in period 1 and

an income of $115 in period 2. The current interest rate is 15%. Based on this information, which of the following statements is correct?

_____
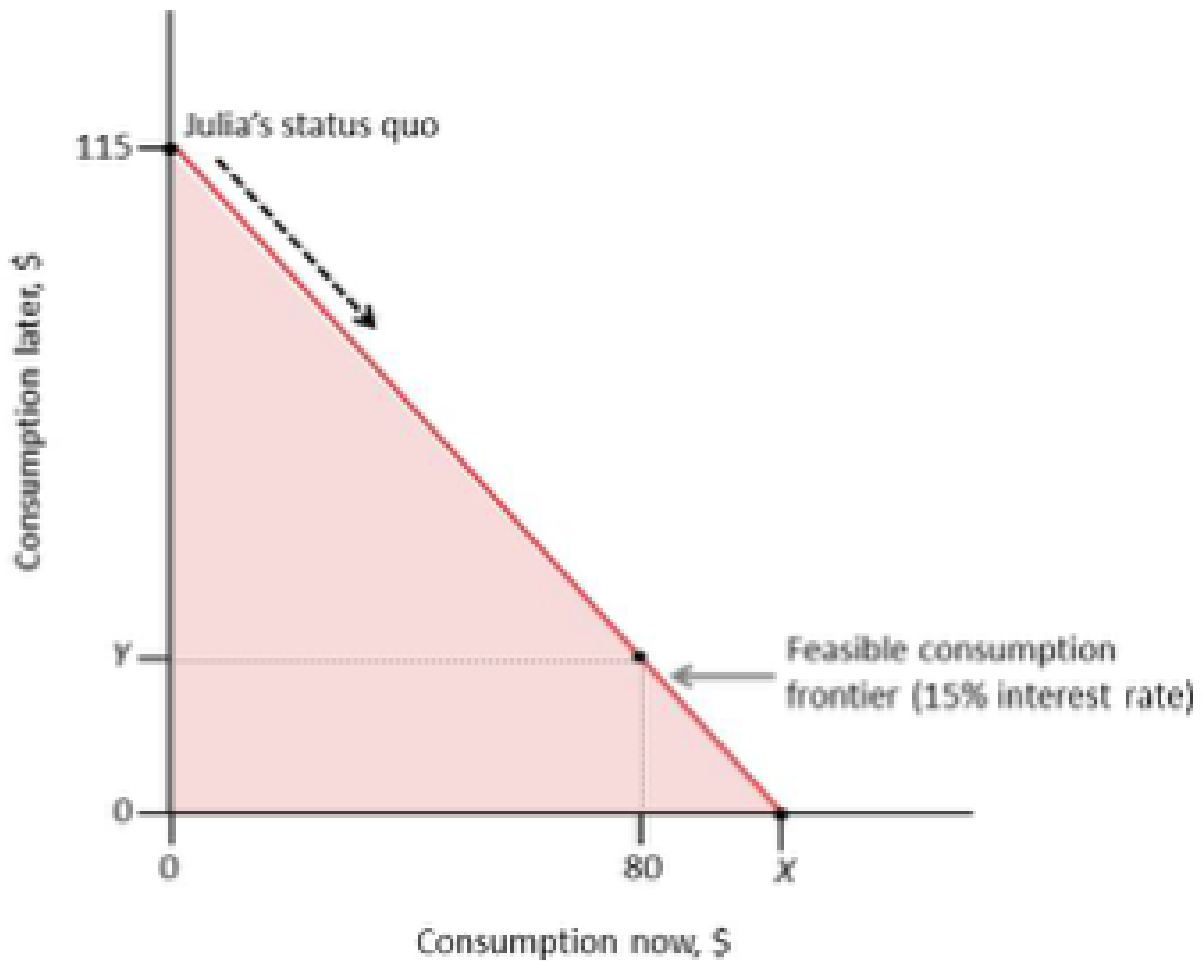
(A) The maximum that Julia can borrow to spend in period 1 is $91.

(B) If Julia borrows $80 to spend in period 1, she will have $23 to spend in period 2.

(C) The consumption choice of $60 in period 1 and $50 in period 2 is a feasible option.

(10) (UCL-S17-Q13) Which of the following statements about liquidity and solvency is/are true? _____

(A) The relevant items on the balance sheet to assess solvency are total liabilities and total assets.

(B) Allowing banks to borrow from the central bank at a penalty rate of interest can deal with a bank's solvency but not liquidity problem.

(C) If a bank admits that many of its loans are 'non-performing' and unlikely to be repaid, this increases its liabilities.