

ECON 2002.01 MIDTERM EXAM

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① Which of the following statements is correct regarding disposable income? _____

- (A) Disposable income is the amount of income that is disposed (given away).
- (B) Disposable income is total income, calculated as the sum of an individual's wages, profit, rent, interest, and transfer payments from the government.
- (C) Disposable income is the maximum amount of expenditure (e.g. food, housing, clothing, and other goods and services) possible without having to borrow or sell possessions.
- (D) Disposable income is the exact measure of one's wellbeing.

② Which of the following does not lead to higher GDP? _____

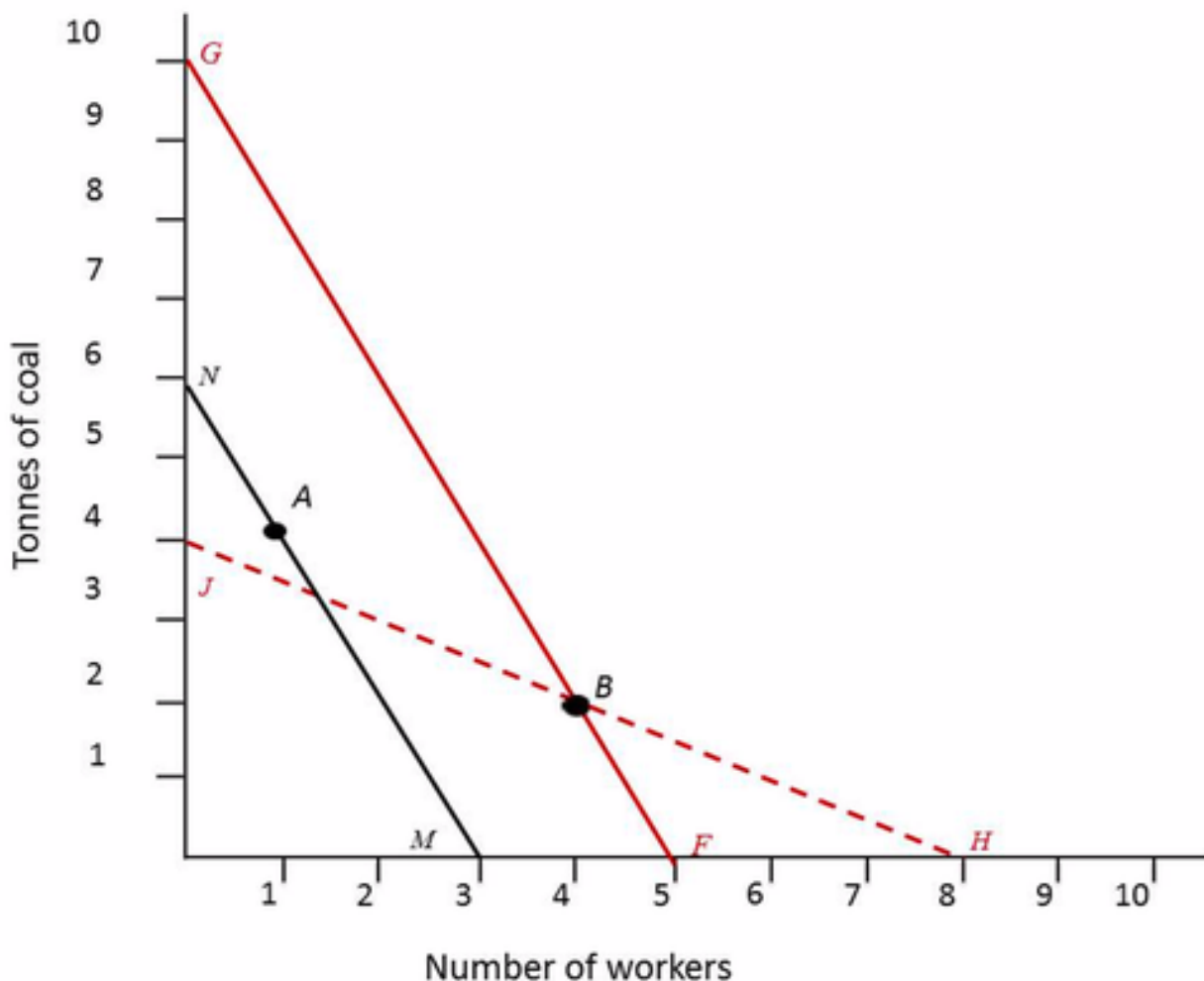
- (A) Wealth transfers from the rich to the poor, which lead to higher income equality.
- (B) Higher government expenditure on education.
- (C) Rebuilding and reopening an abandoned shopping mall, which is immediately occupied by new businesses.
- (D) Building a new manufacturing factory, which requires the clearing of forests.

③ Which of the following statements is correct? _____

- (A) A model is an exact representation of what goes on in the economy.
- (B) A model is an economic relationship that is only represented by mathematics.

- (C) Equilibrium is a self-perpetuating situation that does not change, unless a force for change is introduced from the outside and alters the basic data describing the situation.
- (D) Equilibrium in GDP growth rate is when the growth rate is zero.

- ④ In the following diagram you are given two technologies, A and B, which can produce 100 metres of cloth. Technology A uses 1 worker and 4 tonnes of coal, while technology B uses 4 workers and 2 tonnes of coal. The diagram also depicts three examples of isocosts, NM, GF and JH. The wage cost and the price of coal are denoted by w and p , respectively. In case 1, the wage cost and the price of coal are $(w, p) = (20, 10)$, while in case 2, $(w, p) = (10, 20)$. Which of the following statements is correct? _____



- (A) Technology B would be chosen in both cases 1 and 2.

- (B) Technology A would be chosen in case 1 while technology B would be chosen in case 2.
- (C) Technology B would be chosen in case 1 while technology A would be chosen in case 2.
- (D) Technology B would be cheaper under case 1 than under case 2.

⑤ Which of the following statements regarding the Malthusian model are correct when there is a positive one-off technological shock (such as an improved seed)?

- (A) There is an immediate and permanent rise in the average product of labour.
- (B) The population initially rises but then falls to the pre-technological shock level.
- (C) Income initially rises but then falls to the subsistence level in equilibrium.
- (D) Malthus' Law states that an increase in productivity will result in both increased population and wages in the long run.

⑥ Which of the following is an economic rent?

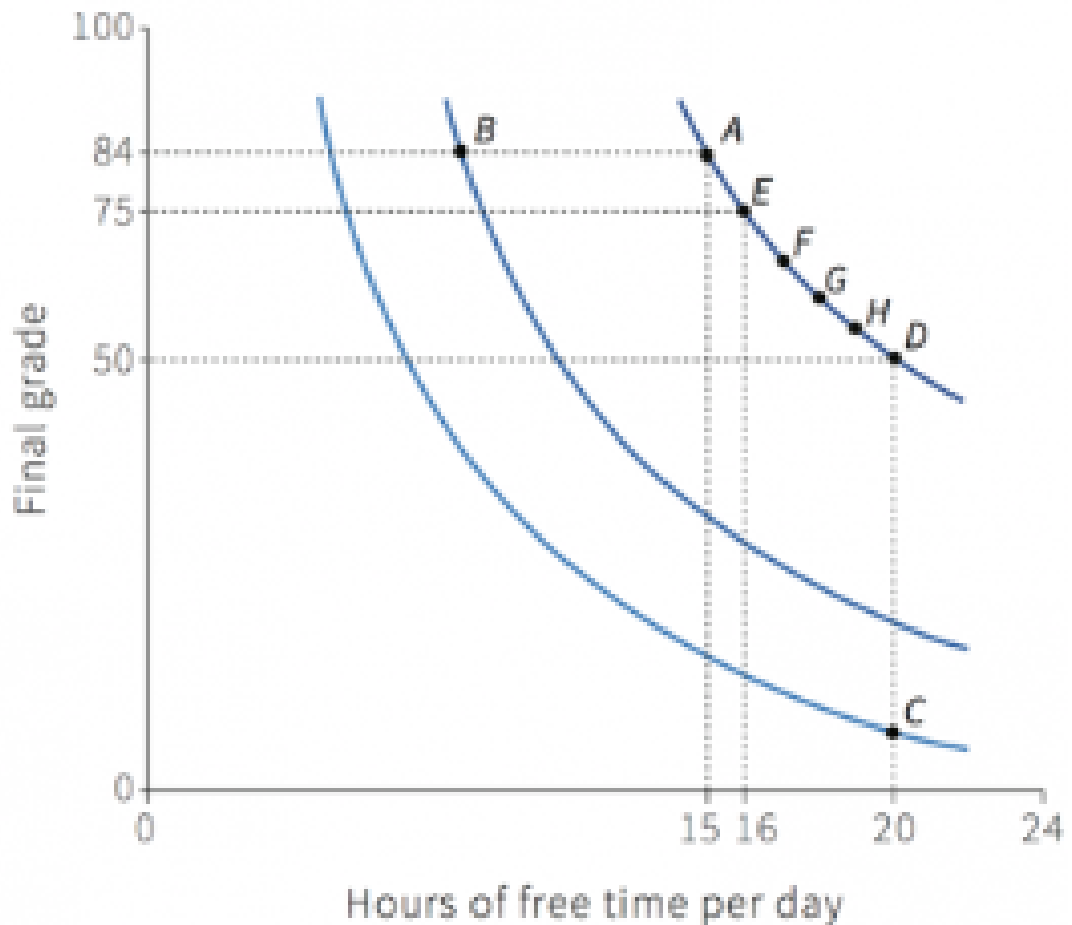
- (A) The amount you pay your landlord for the use of an apartment.
- (B) The amount you pay to hire a car for a weekend.
- (C) The extra profit that a successful innovator makes on bringing a new product to the market before its competitors.
- (D) The extra profit that a firm makes when it doubles in size and there are no changes to costs or the price for each unit of its output.

⑦ You currently work for 40 hours a week at wage rate of £12 an hour. Your free hours are defined as the number of hours not in work, which in this case is $24 \text{ hours} \times 7 \text{ days} - 40 \text{ hours} = 128 \text{ hours per week}$. Suppose that you are happy to keep your total weekly income constant. Then: _____

- (A) If your wage rate increases to £16 an hour, then your free time will increase by 6%.
- (B) To have 12.5% more free time, your wage rate needs to increase by £8.
- (C) Doubling the wage rate would decrease your working hours by a third.
- (D) A wage cut of 25% leaves you with only 100 hours of free time.

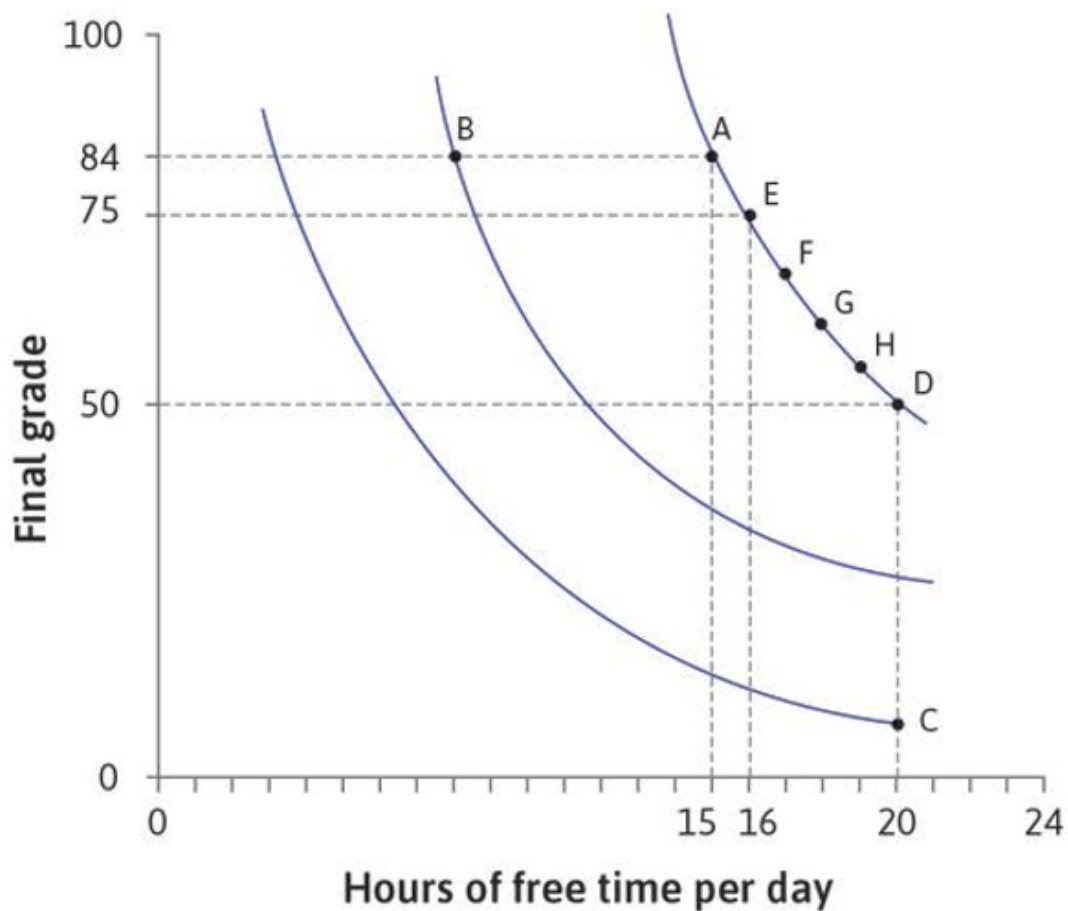
⑧ The figure shows the indifference curves of a student for the two 'goods', free time and final grade. Based on this information, which of the following statements is correct? _____

	A	E	F	G	H	D
Hours of free time	15	16	17	18	19	20
Final grade	84	75	67	60	54	50



- (A) At A, the student is willing to give up 34 grade points for five extra hours of free time.
- (B) A is the student's most preferred choice as she would be attaining the highest grade.
- (C) The student strictly prefers a grade of 54 with 19 hours of free time to a grade of 67 with 18 hours of free time.
- (D) If at B the number of free hours is 10, then the student is 50% happier at A than at B.

- ⑨ You have two choices for how you are going to spend Saturday evening. You can go to the pub with your friends, which will cost you £30 for the evening. The pleasure you anticipate from this experience is worth £50 to you. Or you can go to the theatre. The ticket will cost you £50, but you value the experience at £60. Based on this information, which of the following statements is correct? _____
- (A) The opportunity cost of an evening at the theatre is £10.
 - (B) The economic cost of going to the theatre is £60.
 - (C) The economic rent of going to the theatre is -£10.
 - (D) Based on economic rent alone, you would choose to go to the theatre.
- ⑩ Consider a worker whose choice is between hours of free time and consumption. His company has now cut his wage rate. Which of the following statements is correct? _____
- (A) As a result of the substitution effect, the worker would reduce his free time.
 - (B) The income effect means that the worker would increase his free time.
 - (C) The worker may or may not reduce his free time as a result of the wage cut.
 - (D) The income effect will always dominate the substitution effect of the wage cut.
- ⑪ Figure 3.6 shows Alexei's indifference curves for free time and final grade. Which of the following is true? _____

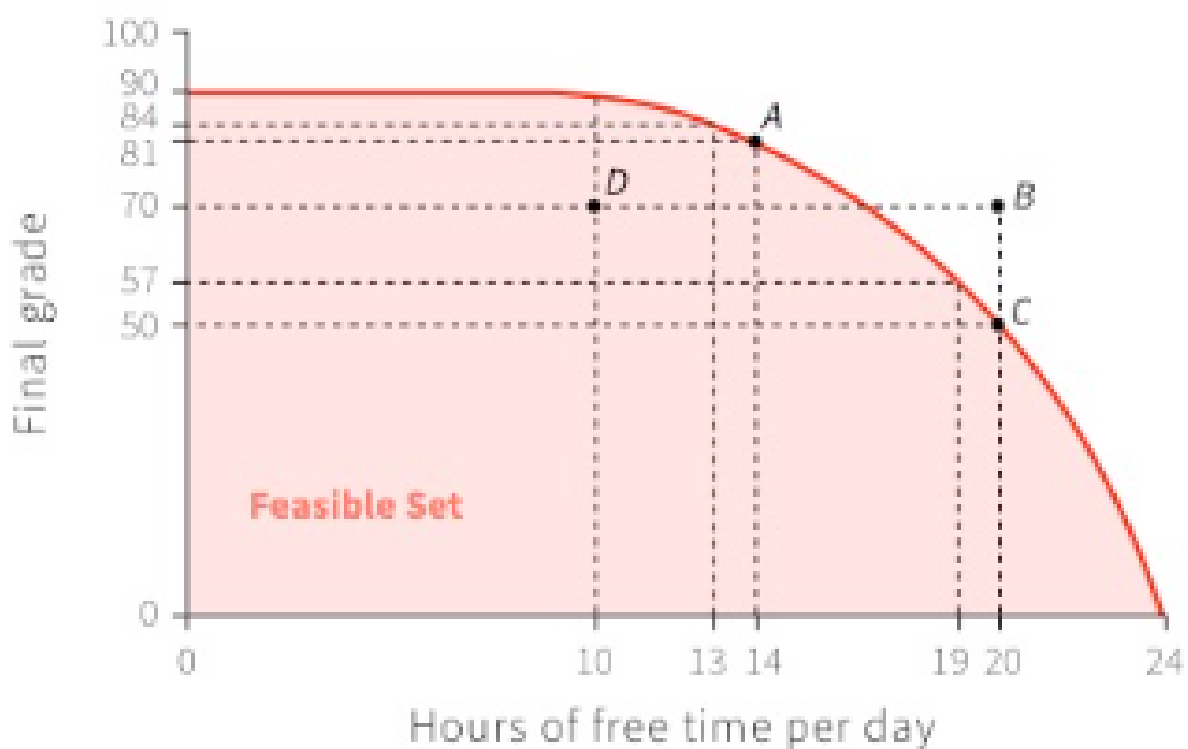


	A	E	F	G	H	D
Study hours	15	16	17	18	19	20
Grade	84	75	67	60	54	50

- (A) Alexei prefers C to B because at C he has more free time.
- (B) Alexei is indifferent between the grade of 84 with 15 hours of free time, and the grade of 50 with 20 hours of free time.
- (C) Alexei prefers D to C, because at D he has the same grade and more free time.
- (D) At G, Alexei is willing to give up 2 hours of free time for 10 extra grade points.

- ⑫ The following diagram is the feasible set of a student, showing the combinations of her final grade and the hours of free time per day. Based on this information, we can say that: _____

		A		C
Free time	13	14	19	20
Grade	84	81	57	50
MRT		3		7



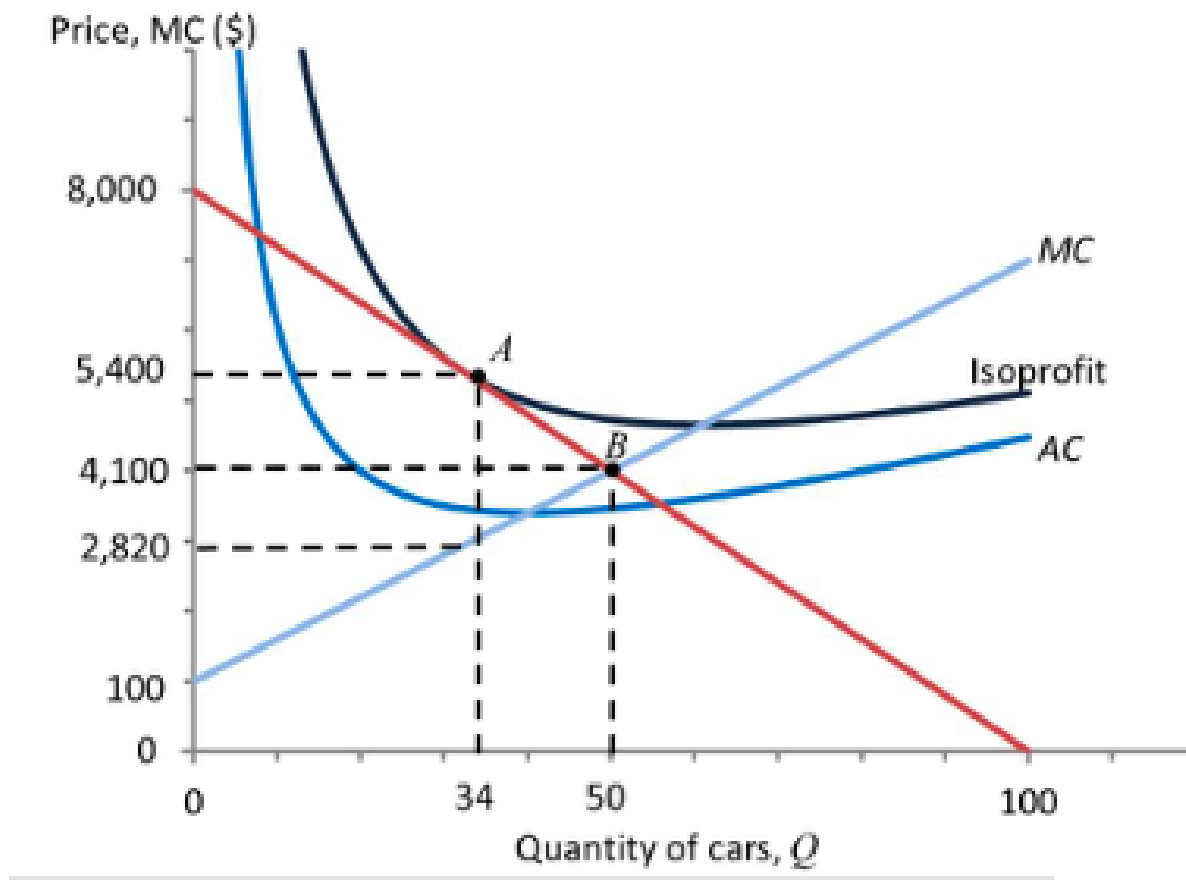
- (A) Whether the student would choose A or B depends on her preferences.
- (B) At A, the student can attain grade of 81 for 14 hours of study.
- (C) C would never be chosen over A.
- (D) The marginal rate of transformation increases with higher number of free hours.

- ⑬ Which of the following statements regarding employment contracts are correct?

- (A) The firm is required to state exactly what it needs the employee to do in an employment contract.
 - (B) The firm needs to specify exactly how much effort employees are expected to put into their job.
 - (C) Employees' effort levels cannot be the basis of an enforceable contract.
 - (D) Employment contracts are incomplete as they can only specify things that both the employees and the business owner care about.
- ⑭ Thomas earns £12 per hour in his current job and works 36 hours a week. He loves his job and puts in his maximum effort with no disutility. In fact, Thomas earns extra utility worth £3 per hour from camaraderie, status, and enjoyment of the job. If he loses this job Thomas has two choices. Either he is able to be self-employed, which earns him £7 an hour for 36 hours a week of work but also gives him disutility equivalent to £2 per hour, or he can be unemployed and receive an unemployment benefit of £150 per week. Thomas is expected to be able to find another job similar to his current one in 24 weeks. Then: _____
- (A) Thomas's next best option is to be unemployed.
 - (B) The employment rent per hour is £8.
 - (C) Thomas's employment rent is £9,360.
 - (D) If Thomas chooses the self-employment option then his loss of employment rent is £8,640.
- ⑮ Consider isocost lines drawn on a graph with hourly wage on the horizontal axis and effort per hour on the vertical axis. Which of the following statements is correct? _____
- (A) Isocost lines intersect the horizontal axis at the reservation wage.
 - (B) The slope of the isocost line is the employer's marginal rate of transformation of higher wages into worker effort.
 - (C) Steeper isocost lines represent higher cost per unit of effort.
 - (D) For an isocost lines with a slope of 0.07, the cost of unit of effort is \$14.3.

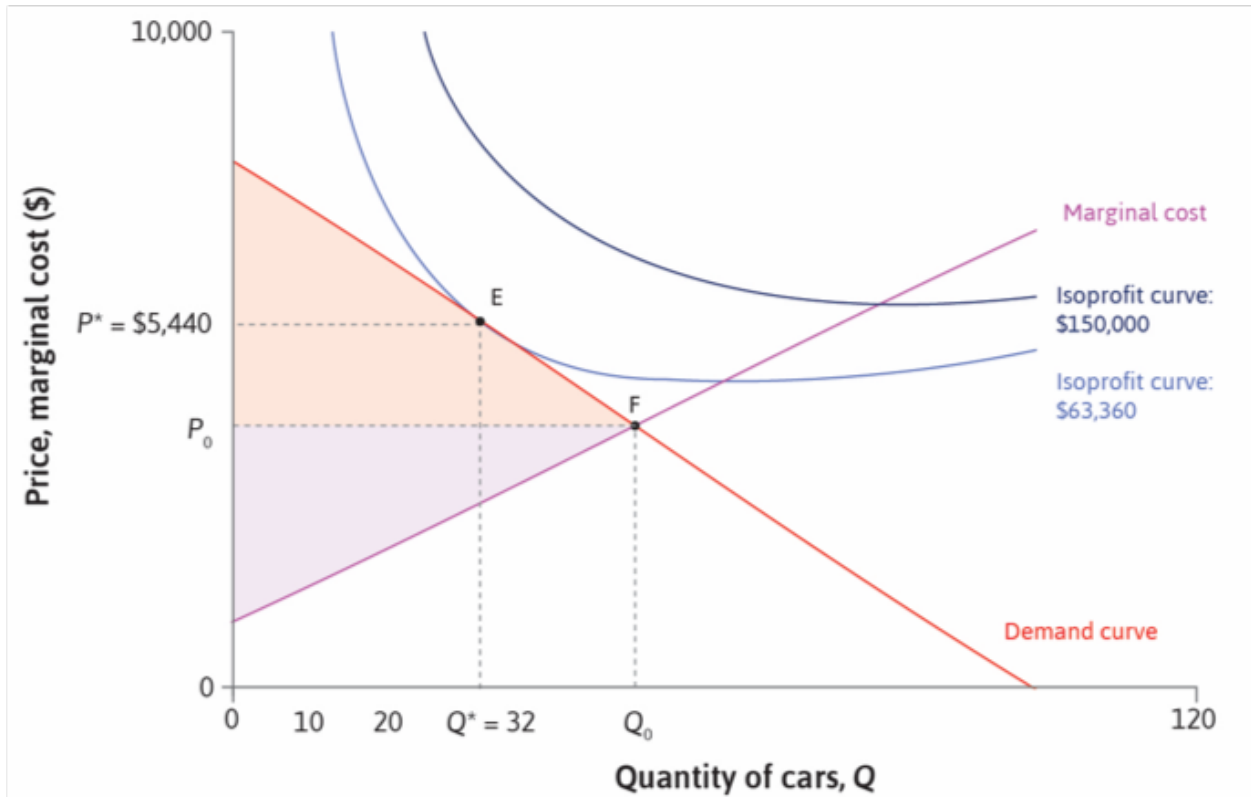
- ①⑥ If unemployment benefits increase: _____
- (A) A worker's effort increases because the employment rent increases.
 - (B) Effort decreases because the disutility of effort decreases.
 - (C) The employment rent will fall unless the firm raises the wage.
 - (D) The employment rent will increase unless the firm raises the wage.
- ①⑦ Which of the following statements best describes the game played by the employer and the employee in the labour discipline model? _____
- (A) The game is a simultaneous game in which the employer chooses the wage level and the employee chooses the effort level simultaneously.
 - (B) The game is a one-off game in which the wage and effort levels are determined once and for all.
 - (C) The worker selects the effort level that balances his desire to keep his job with his desire to not exhaust himself on the job.
 - (D) The employer will attempt to maximise the firm's profits by offering a wage equal to the worker's reservation wage.
- ①⑧ Maria earns \$12 per hour in her current job and works 35 hours a week. Her disutility of effort is equivalent to a cost of \$2 per hour of work. If she loses her job, she will receive unemployment benefit equivalent to \$6 per hour. Additionally, being unemployed has psychological and social costs equivalent to \$1 per hour. Then: _____
- (A) The employment rent per hour is \$3.
 - (B) Maria's reservation wage is \$6 per hour.
 - (C) Maria's employment rent if she can get another job with the same wage rate after 44 weeks of being unemployed is \$6,160.
 - (D) Maria's employment rent if she can only get a job at a lower wage rate after 44 weeks of being unemployed is more than \$7,700.

- ①⑨ Which of the following statements regarding the marginal rate of substitution (MRS) and the marginal rate of transformation (MRT) of a profit-maximising firm is correct? _____
- (A) The MRS is how much in price you are willing to give up for an incremental increase in the quantity, holding profits constant.
 - (B) The MRT is how much in price the consumers are willing to give up for an incremental increase in the quantity consumed, keeping their utility constant.
 - (C) If $MRT > MRS$ then firms can increase their profit by increasing output.
 - (D) The MRT is the slope of the isoprofit curves.
- ②⑩ Which of the following statements regarding average cost and marginal cost of a firm is correct? _____
- (A) Average cost is the slope of the total cost curve.
 - (B) Marginal cost is the slope of the average cost curve.
 - (C) Marginal cost is always higher than average cost.
 - (D) When marginal cost equals average cost, the slope of the average cost curve is zero.
- ②⑪ The figure depicts the demand curve of a firm producing cars, together with its marginal cost, average cost, and isoprofit curves. Based on the figure, which of the following statements is correct? _____



- (A) The consumer surplus in the profit-maximising outcome is \$105,300.
- (B) The producer surplus in the Pareto efficient outcome is \$133,960.
- (C) The deadweight loss in the profit-maximising outcome is \$20,640.
- (D) The firm's profit in the Pareto efficient outcome is \$100,000.

②② The following figure depicts a firm's profit-maximising choice at point E, given the market demand curve and the firm's marginal cost curve. You are given that the firm's marginal costs are \$400, \$2,960 and \$4,200 at output levels $Q = 0$, $Q^* = 32$ (point E) and $Q_0 = 48$ (point F), respectively. Based on this information, which of the following statements is correct? _____



- (A) The consumer surplus at E is \$41,000.
- (B) The producer surplus at E is \$126,720.
- (C) The deadweight loss at E is \$19,840.
- (D) The gains from trade at E are \$120,320.

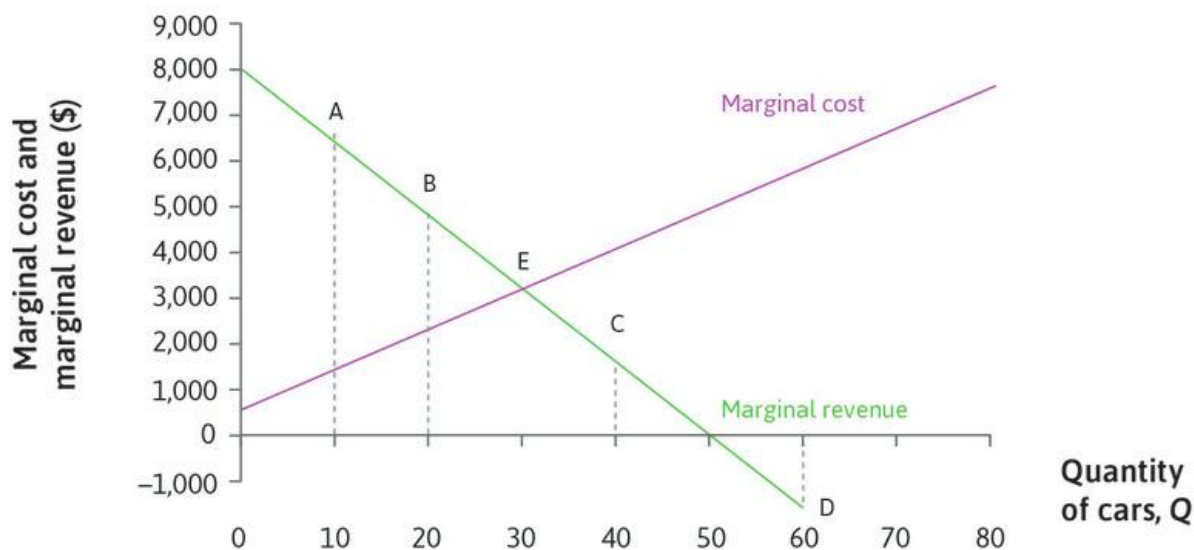
(23) Demand faced by a monopolist is $Q = 20 - 0.5P$. Her marginal cost is 10. Based on this information we can say that: _____

- (A) The optimal production of the monopolist is $Q = 15$.
- (B) The price charged by the monopolist is equal to her marginal cost.
- (C) The deadweight loss associated with the monopolist's choice of price is less than the product of the difference between her price and marginal cost, multiplied by her optimal quantity.
- (D) The price charged by the monopolist is lower to her marginal cost.

②④ Consider a firm with fixed costs of production. Which of the following statements about its average cost (AC) and marginal cost (MC) is correct? _____

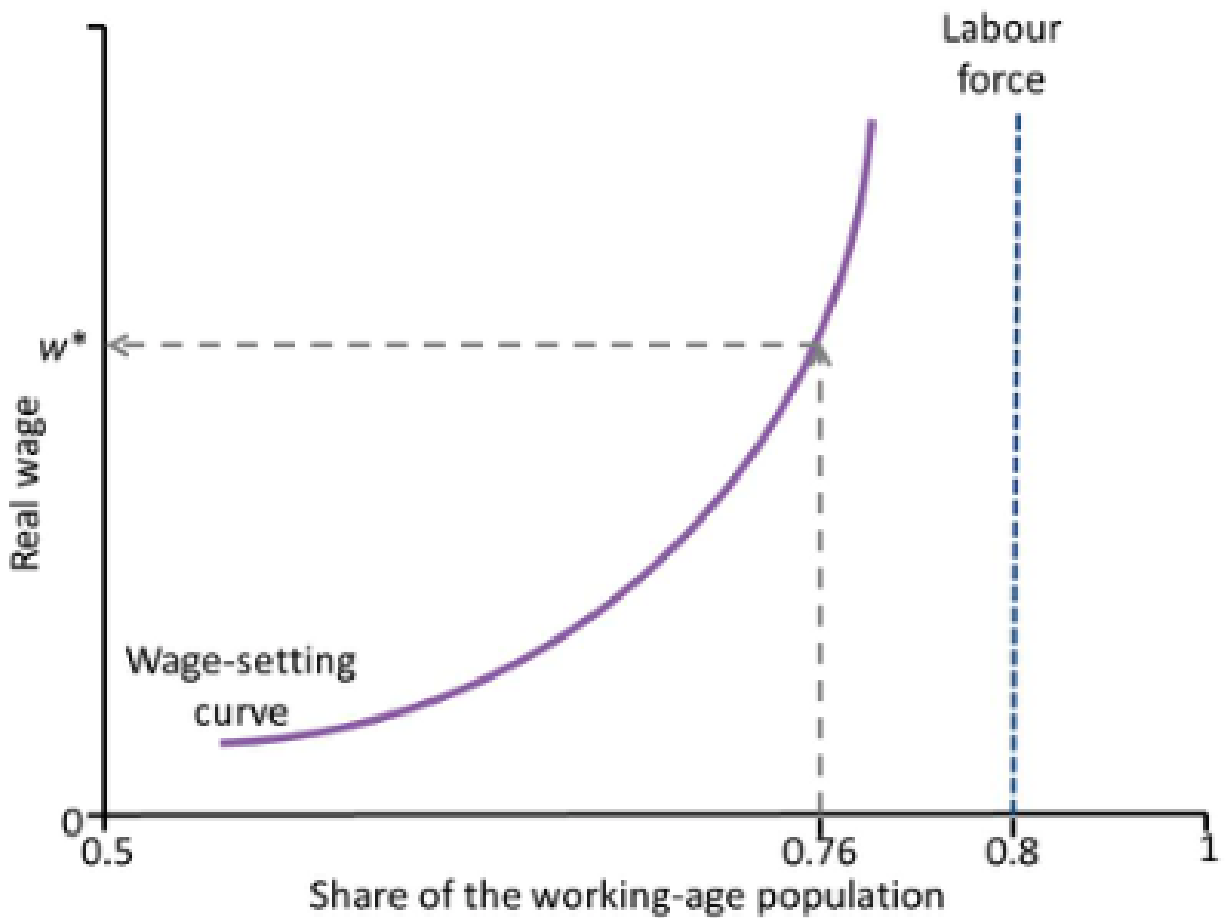
- (A) When $AC = MC$, the AC curve has a zero slope.
- (B) When $AC > MC$, the MC curve is downward-sloping.
- (C) When $AC < MC$, the AC curve is downward-sloping.
- (D) The MC curve cannot be horizontal.

②⑤ This figure shows the marginal cost and marginal revenue curves for Beautiful Cars. Which of the following statements is correct, based on the information shown? _____



- (A) When $Q = 40$, the marginal cost is greater than the marginal revenue so the firm's profit must be negative.
- (B) Revenue is greater when $Q = 10$ than if $Q = 20$.
- (C) The firm would not choose to produce at point E because marginal profit is zero.
- (D) Profit is greater when $Q = 20$ than when $Q = 10$.

②⑥ The figure shows the wage-setting curve and the real wage w^* . Which of the following statements is correct?



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- (A) The unemployment rate is 5%.
 - (B) The participation rate is 76%.
 - (C) The employment rate is 95%.
 - (D) 4% of the population is unemployed.

②7 Which of the following statements about the wage-setting curve is correct?

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- (A) The wage-setting curve depicts the workers' reservation wage for different levels of economy-wide employment.
 - (B) At each point (U, w) on the wage-setting curve, the workers are choosing their best response effort level given the real wage (w) and unemployment rate (U) .

- (C) A lower unemployment rate shifts the wage-setting curve to the left.
- (D) An exodus of European workers due to Brexit would, *ceteris paribus*, result in a downward shift of the UK's wage-setting curve.

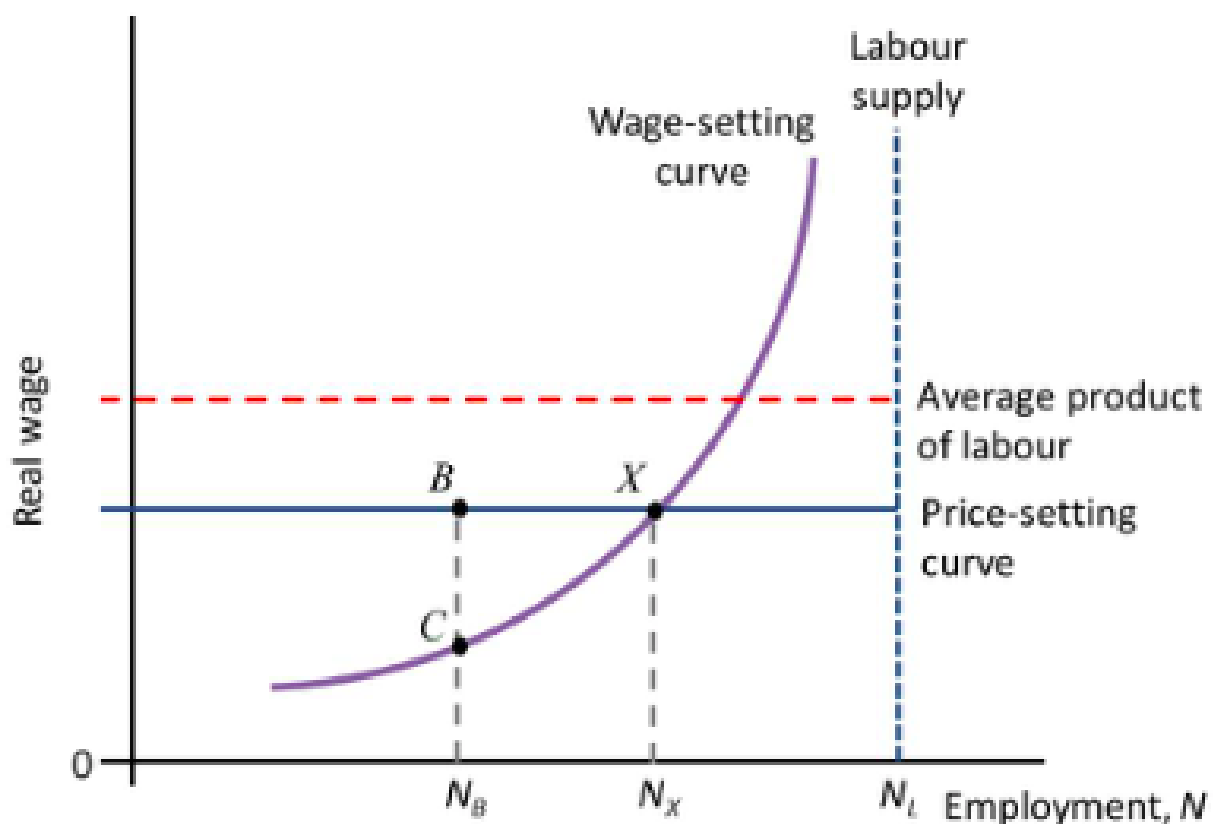
②⑧ Which of the following statements about the price-setting curve is correct? _____

- (A) The price-setting curve depicts the firms' profit-maximising price level for different levels of economy-wide employment.
- (B) Firms have to pay a higher real wage when the employment rate is higher. Therefore the price-setting curve is upward-sloping.
- (C) At points below the price-setting curve, the firms are setting prices too high compared to their profit-maximising level.
- (D) The reduction in competition from Europe due to Brexit would result in the UK's price-setting curve shifting up.

②⑨ Consider an economy with firms selling differentiated products, where the only input to production is labour. Which of the following statements is correct?

- (A) Firms make no economic rent.
- (B) Workers receive no employment rent.
- (C) Firms choose the level of nominal wage that corresponds to the workers' maximum effort.
- (D) The more inelastic the demand curve faced by the firm, the higher the markup set by the firm.

③⑩ The figure depicts the labour market when there has been a negative aggregate demand shock. Which of the following statements is correct? _____



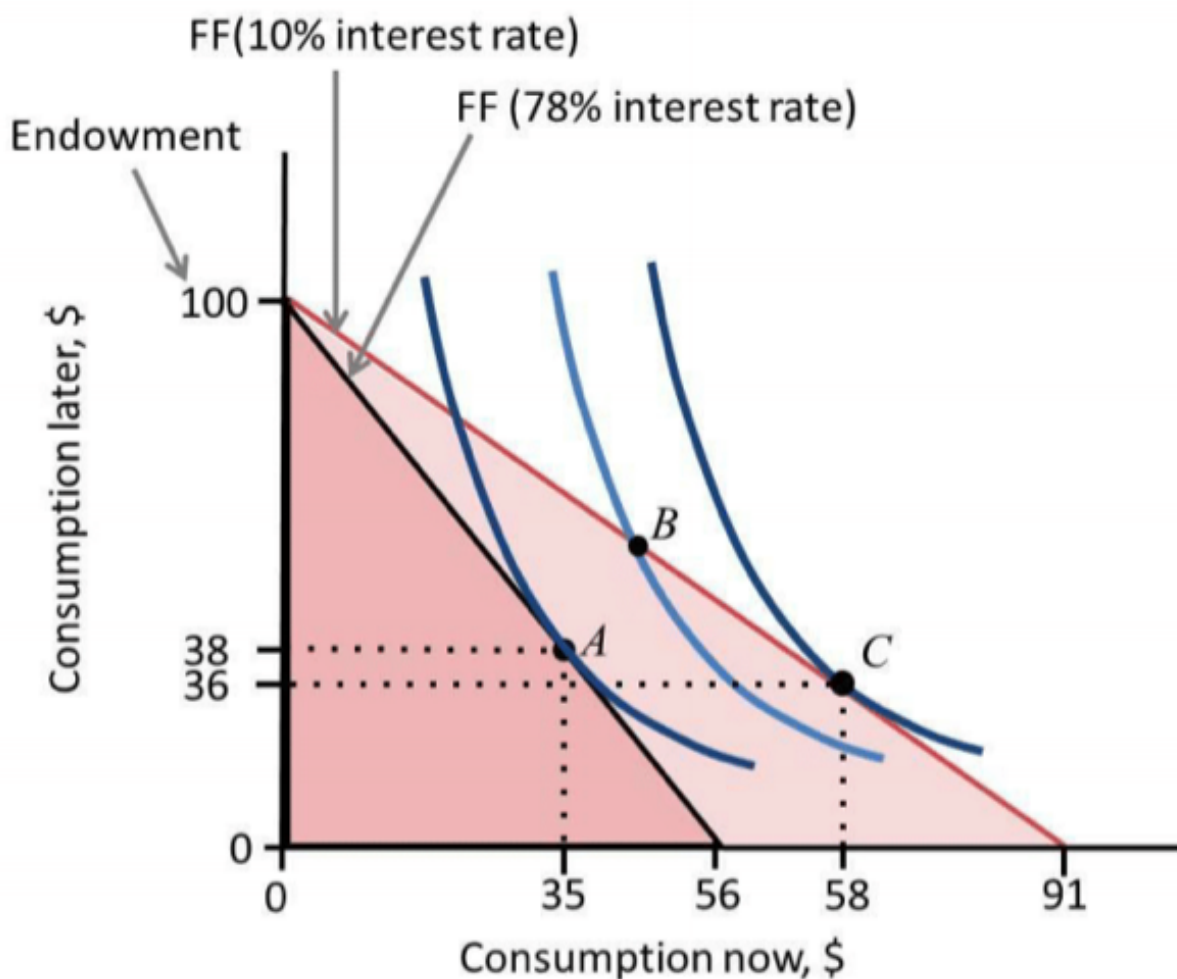
- (A) B is not a Nash equilibrium outcome.
- (B) C is a Nash equilibrium outcome.
- (C) At C, firms are able to make higher profits by increasing the price.
- (D) Moving from B to C eliminates cyclical unemployment.

③① 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.

③② 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

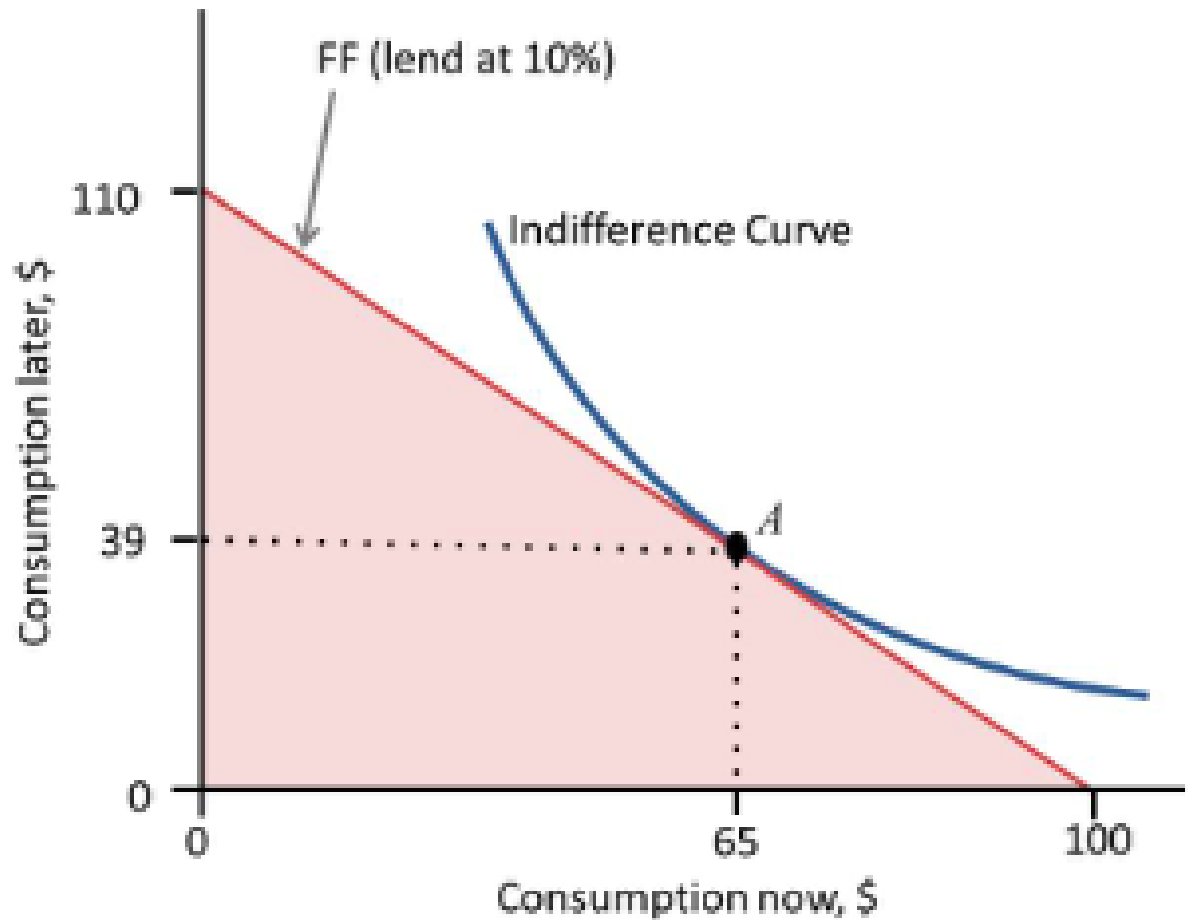
scenario 1 the interest rate is 78%, while in scenario 2 it falls to 10%. Based on this information, which of the following statements is correct?



- (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.

33 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 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.

③④ 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.

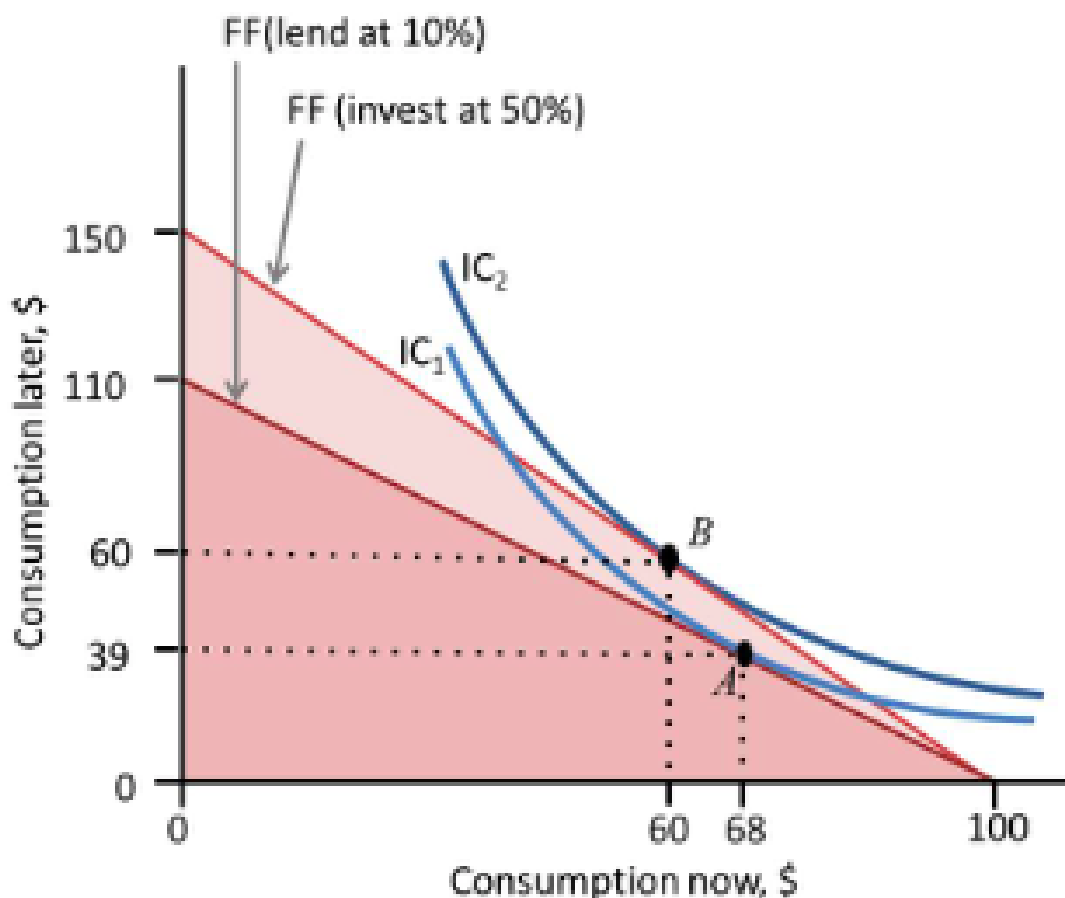
- (B) If the annually compounding interest rate is 5%, then the total present value (in Year 0) of receiving £100 at the end of Year 1 and £100 at the end of Year 2 is £185.94.
- (C) £95 today is worth the same as £100 in one year's time if the interest rate is 5%.
- (D) If you pay £96 for an investment that pays £100 in one year's time when the interest rate is 5%, then your net present value is £0.76.

- ③⑤ 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

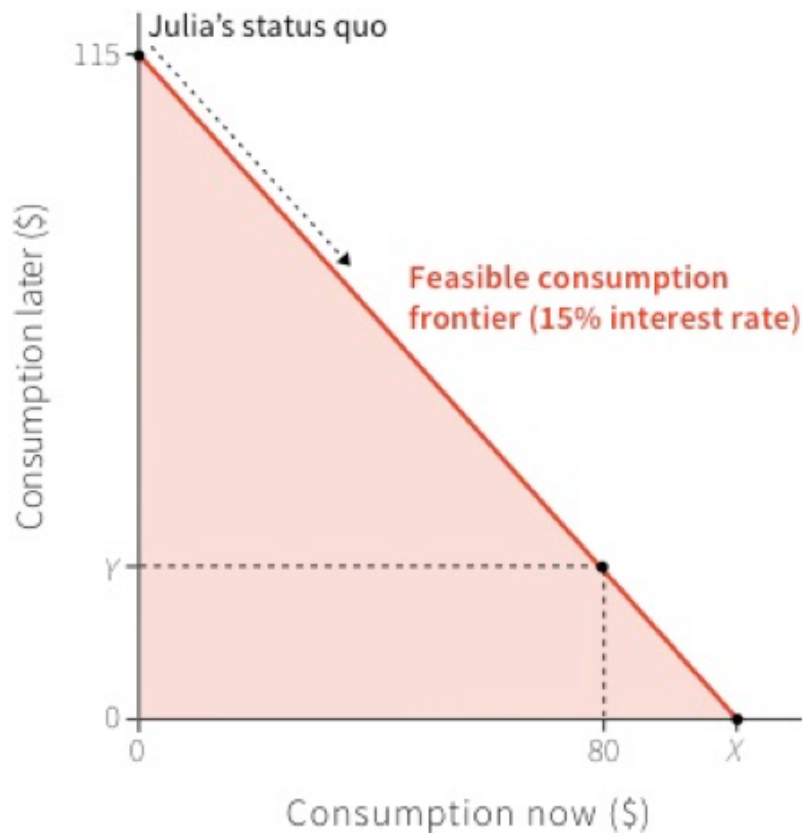
- (A) £34 million of the assets are owned by the bank.
- (B) The value of the bank's equity is £120 million.
- (C) The bank's leverage ratio is 95.
- (D) A fall of over 5% in the asset value would make the bank insolvent.

- ③⑥ 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?



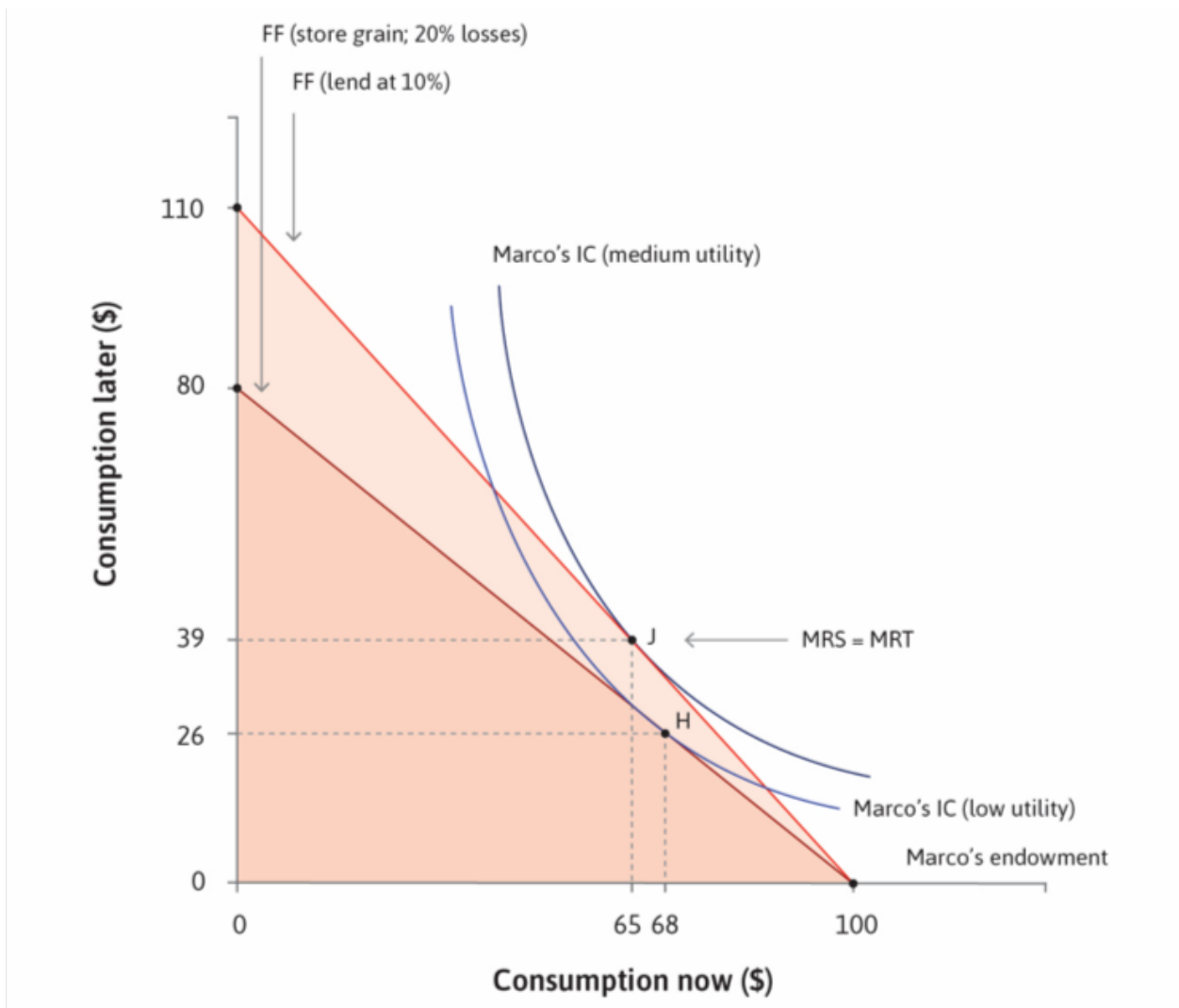
- (A) Marco is less impatient at B than at A.
- (B) Going from scheme 1 to scheme 2, the substitution and income effects have opposite effects on period 2 consumption.
- (C) Marco can do better than consumption choice B by investing all of his grain and consuming the output in period 2.
- (D) Marco can do better than consumption choice B by investing all of his grain and borrowing against his period 2 output.

37 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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- (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%.

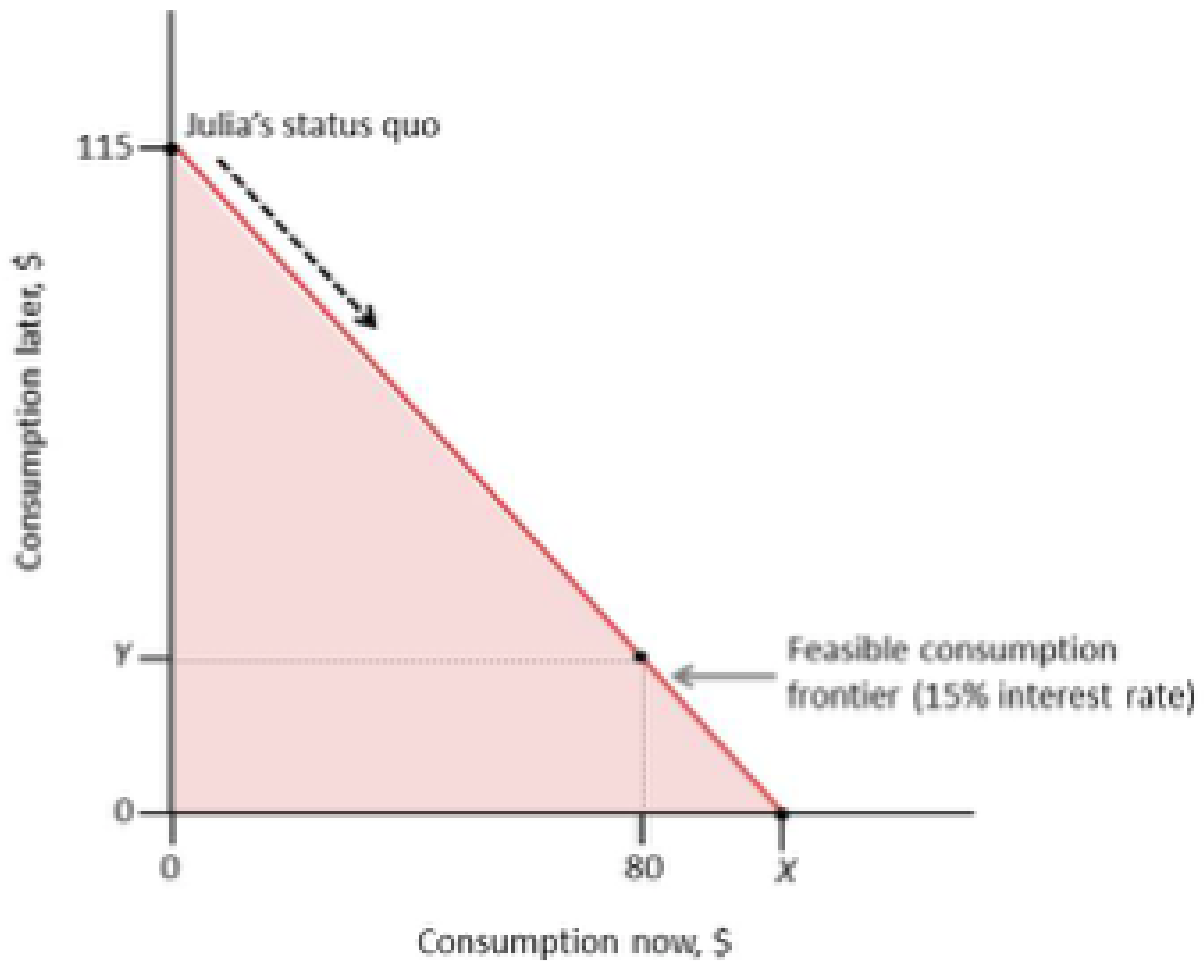
38 The diagram depicts Marco's choice of consumptions now and later (next period). He has \$100 worth of grain now and no income later. Marco has two choices. In scheme 1, he can store the grain that he does not consume now. This results in a loss of 20% of the grain due to pests and rotting. In scheme 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?



- (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.

39 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.

④ Which of the following statements about liquidity and solvency is/are true?

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- (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.