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1. (9%) Steve White the new controller of Weinberg Company, has reviewed the expected useful lives and residual values of selected depreciable assets at the beginning of 2017. His findings are as follows.

Type of Asset	Date Acquired	Cost	Accumulated Depreciation 1/1/17	Useful Life in Years		Residual Value	
				Old	Proposed	Old	Proposed
Building	1/1/11	\$3,200,000	\$456,000	40	50	\$80,000	\$104,000
Warehouse	1/1/12	207,000	40,000	25	20	7,000	5,000

All assets are depreciated by the straight-line method. Weinberg Company uses a calendar year in preparing annual financial statements. After discussion, management has agreed to accept Steve's proposed changes.

**Required:**

- Compute the revised annual depreciation on each asset in 2017. (Show computations.)
- Prepare the entry (or entries) to record depreciation on the building in 2017.

2. (15%) On December 31, 2017, Wayne, Inc. sold \$8,000,000 (face value) of bonds. The bonds are dated December 30, 2017, pay interest annually on December 31, and will mature on December 31, 2020. The following schedule was prepared by the accountant for 2018.

Annual Interest Period	Interest to be Paid	Interest Expense	Amortization	Bond Carrying Value
				\$7,800,000
1	\$640,000	\$702,000	\$62,000	\$7,862,000

**Required:**

On the basis of the above information, answer the following questions. (Round your answer to the nearest dollar or percent.)

- What is the stated interest rate for this bond issue?
- What is the market interest rate for this bond issue?
- What was the selling price of the bonds as a percentage of the face value?
- Prepare the journal entry to record the sale of the bond issue on December 31, 2017.
- Prepare the journal entry to record the payment of interest and amortization on December 31, 2018.

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3. (18%) An inexperienced accountant for Otto Corporation made the following entries.

July	1	Cash	210,000	
		Share Capital—Ordinary		210,000
		<i>(Issued 15,000 no-par ordinary shares, stated value \$12 per share)</i>		
Sept.	1	Share Capital—Ordinary	28,000	
		Retained Earnings	10,000	
		Cash		38,000
		<i>(Purchased 2,000 treasury shares (issued on July 1) at \$19 per share)</i>		
Dec.	1	Cash	20,000	
		Share Capital—Ordinary		14,000
		Gain on Sale of Shares		6,000
		<i>(Sold 1,000 treasury shares at \$20 per share)</i>		

**Required:**

- On the basis of the explanation for **each entry**, **prepare** the entry that should have been made for the transactions. (Omit explanations.)
- Prepare the correcting entries that should be made to correct the accounts of Otto Corporation. (Do not reverse the original entry.)

4. (18%) On January 1, 2018, Shane Corporation acquired 30 percent (13,000 shares) of Matthews Services Inc. common stock for \$2,600,000 as a long-term investment. Data from Matthews's 2018 financial statements include the following:

Net income	\$330,000
Less cash dividends paid	<u>160,000</u>
Increase in retained earnings	<u>\$170,000</u>

The market value of Matthews Services Inc. common stock on December 31, 2018, was \$198 per share. Shane does not have any other investments in financial assets

Prepare the necessary journal entries for Shane's investment in Matthews Services Inc. common stock assuming Shane uses the following methods to account for its investment in Matthews Services

- Classified as FVTOCI financial assets- Equity because Shane Corporation made an irrevocable election to measure the equity investment as FVTOCI.
- The equity method.

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5. (20%) The separate statements of financial position of Platt Company and its wholly owned subsidiary, Speer Company, as of the date of acquisition are shown below:

<u>Assets</u>	Platt	Speer	Consolidated Data
Equipment (net)	\$200,000	\$486,000	
Investment in Speer Co.	810,000		
Inventory	100,000	300,000	
Accounts Receivable	240,000	283,000	
Cash	<u>170,000</u>	<u>57,000</u>	
Totals	<u>\$1,620,000</u>	<u>\$1,126,000</u>	
<u>Liabilities and Equity</u>			
Share Capital-Ordinary	900,000	630,000	
Retained Earnings	250,000	180,000	
Bonds Payable	120,000	150,000	
Accounts Payable	<u>250,000</u>	<u>166,000</u>	
Totals	<u>\$1,620,000</u>	<u>\$1,126,000</u>	

**Required:**

Provide the amount that should appear in the Consolidated Data column for each of the selected accounts. If the account should not appear in the Consolidated Data column, indicate "None." Assume that all accounts have normal balances and that Speer Company shares were acquired for cash at a price equal to its book value.

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6. (20%) A comparative statement of financial position for Mann Company appears below:

MANN COMPANY

Comparative Statement of Financial Position

	Dec. 31, 2017	Dec. 31, 2016
Assets		
Equipment	\$60,000	\$32,000
Accumulated depreciation—equipment	(20,000)	(14,000)
Long-term investments	0	18,000
Prepaid expenses	6,000	9,000
Inventory	25,000	18,000
Accounts receivable	18,000	14,000
Cash	33,000	10,000
Total assets	\$122,000	\$87,000
Equity and Liabilities		
Share capital—ordinary	\$40,000	\$23,000
Retained earnings	28,000	10,000
Bonds payable	37,000	47,000
Accounts payable	17,000	7,000
Total equity and liabilities	\$122,000	\$87,000

Additional information:

1. Net income for the year ending December 31, 2017 was €33,000.
2. Cash dividends of €15,000 were declared and paid during the year.
3. Long-term investments that had a cost of €18,000 were sold for €14,000.
4. Sales for 2017 were €120,000.

**Required:**

Prepare a statement of cash flows for the year ended December 31, 2017, using the indirect method.

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- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。



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Multiple Choice Questions (單選題) 每題 2.5 分 選擇題請在答案卡上作答，否則不予計分。

1. Bicycles are made out of steel. If the price of steel increases, there is a shift in the supply curve of bicycles that leads to
  - A) a shift in the demand curve for bicycles.
  - B) a temporary surplus of bicycles.
  - C) a permanent surplus of bicycles.
  - D) an increase in the price of a bicycle.
2. A 10 percent increase in the quantity of spinach demanded results from a 20 percent decline in its price. The price elasticity of demand for spinach is
  - A) 0.5.
  - B) 2.0.
  - C) 10.0.
  - D) 20.0.
3. A person will choose to buy a good as long as
  - A) marginal benefit is at least as great as price.
  - B) consumer surplus is positive.
  - C) marginal benefit is positive.
  - D) consumer surplus is at least as great as price.
4. Which of the following is NOT a potential impact of a rent ceiling set below the equilibrium rent?
  - A) a surplus
  - B) an increase in search
  - C) a deadweight loss
  - D) None of the above because they are all impacts of a rent ceiling set below the equilibrium rent.
5. A country opens up to trade and exports computer chips. In the computer chip market, surplus has been redistributed from
  - A) consumers to producers.
  - B) producers to consumers.
  - C) producers to government.
  - D) government to consumers.

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6. Marginal utility theory assumes that when Sally consume less of a good that she was previously consuming more than one unit of, her \_\_\_\_\_.
- A) total utility increases
  - B) marginal utility increases
  - C) income increases
  - D) total utility is maximized
7. For a consumer, a budget line shows the boundary between
- A) what is desired and what is not desired.
  - B) what is needed and what is not needed.
  - C) what is affordable and what is not affordable.
  - D) what is available and what is not available.
8. Suppose Sam plans to buy only popcorn and soda. He has \$40 to spend per week. A change in which of the following variables will change Sam's consumption possibilities?
- I. price of popcorn
  - II. income
  - III. preferences
  - IV. utility
- A) II only
  - B) I and II
  - C) I, II and III
  - D) III and IV
9. Flora's Flower Shop bought a new van for \$23,000. Today, the market price of this van is \$11,000. The economic depreciation of the van is \_\_\_\_\_.
- A) \$23,000
  - B) \$12,000
  - C) \$11,000
  - D) \$34,000

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10. Which of the following factors is fixed in the long run?

- A) capital
- B) land
- C) entrepreneurship
- D) none of the above because all factors are variable in the long run

11. Perfect competition implies that

- A) there are many firms in the market.
- B) all firms are price takers.
- C) all firms are producing the same identical product.
- D) All of the above answers are correct.

Quantity (tattoos per hour)	Total cost, $TC$ (dollars per hour)
0	10
1	25
2	35
3	50
4	70
5	95
6	125

12. Archibald's Tattoos is a perfectly competitive firm. The firm's costs are shown in the table above. If the market price of a tattoo is \$17.50, what is the firm's economic profit?

- A) zero
- B) \$2.50 per hour
- C) \$12.50 per hour
- D) -\$10.00 per hour

13. Which of the following is a barrier to entry for a monopoly?

- A) a patent
- B) severe diseconomies of scale
- C) close substitutes for the good or service exist
- D) All of the above answers are correct.

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14. Of the following, consumer surplus is largest for

- A) a perfectly competitive industry.
- B) a single-price monopoly.
- C) any price-discriminating monopoly.
- D) a perfectly price-discriminating monopoly.

15. In monopolistic competition

- A) each firm's price cannot deviate from the average price of other firms.
- B) each firm supplies a small part of the total market output.
- C) one firm's actions directly affect the actions of the other firms.
- D) collusion is possible.

16. Which of the following statements regarding the efficiency of monopolistic competition is FALSE?

- A) Compared to a situation with total product uniformity, monopolistic competition might be efficient.
- B) Resources are used efficiently when marginal **social** **benefits** equals marginal social cost.
- C) Monopolistic competition is definitely inefficient because **price** exceeds marginal cost.
- D) A greater degree of product variety creates a loss because the quantity produced is less than the efficient quantity.

17. In a small town the level of demand is capable of supporting only two gas stations. This market is

- A) a natural duopoly.
- B) perfectly competitive because a homogeneous good is being sold.
- C) operating as if it was a monopoly.
- D) an example of monopolistic competition.

18. In a prisoners' dilemma game, which of the following strategies gives the best outcome for *both* prisoners?

- A) Both deny (collusion).
- B) Both confess (not collude).
- C) One confesses while the other denies.
- D) none of the above



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<p>19. If it is impossible to prevent someone from benefiting from a good regardless of whether or not the person paid for it, then the good is</p> <p>A) nonrival. B) rival. C) nonexcludable. D) excludable.</p> <p>20. For a good to be nonrival, then</p> <p>A) one person's consumption of that good does not decrease another person's consumption of that good. B) a person cannot be prevented from consuming that good even if he or she did not pay for it. C) a person is willing to pay any price to ensure that the product is available. D) a person is not willing to pay for the good because even without paying for it, the person can consume the good anyway.</p> <p>21. When the marginal social cost of the production of Good A is greater than the marginal private cost of the production of Good A, then</p> <p>A) a competitive, unregulated market produces less than the efficient quantity of Good A. B) a competitive, unregulated market produces the efficient quantity of Good A. C) a competitive, unregulated market produces more than the efficient quantity of Good A. D) the government should levy a tax on the production of Good A that is equal to the horizontal distance between the two marginal cost curves.</p> <p>22. The word "final" in the definition of GDP refers to</p> <p>A) not counting intermediate goods or services. B) the time period when production took place. C) valuing production at market prices. D) counting the intermediate goods and services used to produce GDP.</p> <p>23. Which of the following people would be considered unemployed by the Bureau of Labor Statistics?</p> <p>I. Mrs. X retires from her job at the age of 55 and does not look for another job. II. Mr. Y was laid off from his job as a welder, but expects to be rehired in 8 months.</p> <p>A) I only B) II only C) both I and II D) neither I nor II</p>					

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24. Along the aggregate production function, as the quantity of labor rises, real GDP
- A) rises.
  - B) falls.
  - C) stays the same.
  - D) may fall, rise, or stay the same.
25. Classical growth theory argues that when real GDP per person rises above the subsistence level
- A) technological change slows down, stagnating the economy.
  - B) population growth increases, driving real GDP per person back to subsistence level.
  - C) people don't want to work as much, decreasing labor supply.
  - D) the economy enjoys a period of permanent growth.
26. If the economy's capital stock decreases over time
- A) net investment is positive.
  - B) depreciation is less than zero.
  - C) depreciation exceeds gross investment.
  - D) gross investment equals net investment.
27. If the government has a budget deficit, crowding out might occur. Crowding out leads to all of the following EXCEPT
- A) a higher real interest rate.
  - B) a decreased quantity of investment.
  - C) a smaller capital stock in the future.
  - D) decreased private saving.
28. Checking deposits are
- A) not part of money.
  - B) part of money.
  - C) small in volume relative to currency in circulation.
  - D) quite different from checking accounts.

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29. Which of the following is NOT an asset of the Federal Reserve System?

- A) mortgage-backed securities
- B) reserves of depository institutions
- C) U.S. government securities
- D) None of the above are correct because they are all assets of the Federal Reserve.

30. By definition, currency depreciation occurs when the value of

- A) all currencies fall relative to gold.
- B) one currency falls relative to another currency.
- C) one currency rises relative to another currency.
- D) gold falls relative to the value of currencies.

31. Suppose the current exchange rate between the Chinese yuan and the United States dollar is 7 yuan per dollar.

If the Fed sought to drive up the exchange rate to 8 yuan per dollar then it would

- A) buy dollars.
- B) sell dollars.
- C) buy yuan.
- D) sell dollars and buy yuan.

32. When the labor market is at full employment

- A) real GDP equals potential GDP.
- B) the price level is stable.
- C) the price level equals the potential price level.
- D) the short run aggregate supply curve is horizontal.

33. The intertemporal substitution effect refers to substitution of

- A) goods for services.
- B) goods and services for less expensive goods and services.
- C) goods and services today for goods and services in the future.
- D) goods and services produced domestically for goods and services produced in another country.

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34. Suppose disposable income increases from \$7 trillion to \$8 trillion. At the same time, consumption expenditure increases from \$6.8 trillion to \_\_\_\_\_. Thus the *MPC* must equal \_\_\_\_\_.

- A) \$7.8 trillion; 0.80
- B) \$7.6 trillion; 0.80
- C) \$7.4 trillion; 0.40
- D) \$8 trillion; 1.00

35. An increase in the price level decreases planned expenditures because

- A) real wealth increases, decreasing expenditure.
- B) current prices rise relative to future prices, decreasing expenditure.
- C) domestic prices rise relative to foreign prices, increasing net exports.
- D) the real interest rate rises, increasing expenditure.

36. Fluctuations in business confidence is the factor leading to business cycles in the \_\_\_\_\_.

- A) Keynesian cycle theory
- B) new Keynesian cycle theory
- C) new classical cycle theory
- D) monetarist cycle theory

37. Stagflation occurs when the

- A) price level and real GDP are increasing at the same time.
- B) price level and real GDP are decreasing at the same time.
- C) price level is increasing and real GDP is decreasing.
- D) price level is decreasing and real GDP is increasing.

38. Deliberate changes in government expenditures and taxes to influence GDP

- A) are examples of automatic fiscal policy because the politicians automatically respond.
- B) are forms of discretionary fiscal policy.
- C) are enacted by the Council of Economic Advisers.
- D) operate without time lags.



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39. The core inflation rate, measured by the core PCE deflator, measures changes in the

- A) price of only two consumer goods: food and fuel.
- B) prices of all consumer goods.
- C) prices of consumer goods except the ones for food and fuel.
- D) prices of consumer goods except the ones for health care.

40. If the Fed fears inflation it will undertake an open market \_\_\_\_\_ of securities, the federal funds rate will \_\_\_\_\_ and the long-term real interest rate will \_\_\_\_\_.

- A) sale; rise; fall
- B) sale; rise; rise
- C) purchase; rise; fall
- D) purchase; fall; rise



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1. (10 points) Find the inverse function of  $f$ . ( $x \in \mathbb{R}, x \neq -\frac{3}{2}$ )

$$f(x) = \frac{x-1}{2x+3}$$

2. (10 points) Find the derivative of the function  $y = \sqrt{x}ex^2(x^2+1)^{10}$ .

3. (10 points) Find the critical points, relative extrema, and saddle points of the function.  $f(x, y) = (x+y)e^{1-x^2-y^2}$

4. (10 points) A company makes two products whose demand functions are given by

$$x_1 = 200(p_2 - p_1)$$

$$x_2 = 500 + 100p_1 - 180p_2$$

(1) Determine whether the demand function describe complementary or substitute relationship between  $x_1$  and  $x_2$ .

(2) Find the prices that will yield a maximum profit for the products when the costs of producing the two products are \$0.75 and \$0.5 per unit, respectively.

5. (10 points) A corporation manufactures a product at two locations. The cost of producing  $x_1$  units at location 1 is  $C_1 = (x_1)^2 + 6x_1 + 20$ , and the cost of producing  $x_2$  units at location 2 is  $C_2 = 0.25(x_2)^2 + 6x_2 - 15$ . The demand function for the product is  $p = 90 - 0.5(x_1 + x_2)$ . Find the production levels at the two locations that will maximize the profit.

6. (10 points) Find the area of the region bounded by the graphs of the functions.

$$f(x) = x(x-2)^2$$

$$g(x) = 2x(x-2)$$

7. (10 points) ABC Company's information is as follows. Find the profit function of ABC company.

$$\text{Marginal cost: } MC = \frac{\sqrt{x}}{10} + 10$$

$$\text{Marginal revenue: } MR = 310 - 4x$$

$$\text{Fixed cost: } FC = 2300$$

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8. (10 points) Determine whether the improper integral diverges or converges?  
Evaluate the integral if it converges.

$$\int_{-\infty}^{\infty} \frac{x}{e^{|x|}} dx$$

9. (10 points) Use sixth-degree Taylor polynomial for  $e^{-x^2}$  to approximate the definite integral.

$$\int_0^1 e^{-x^2} dx$$

10. (10 points) Find the particular solution that satisfies the initial condition.

Differential Equation :  $xy' + y = 0$

Initial Condition :  $y = 2$  when  $x = 2$

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