

# TEST CLM 2013 MEF

DISCIPLINE	NUMERO QUESITI
Microeconomia Macroeconomia	9
Matematica per l'Economia	6
Statistica Statistica Economica	6
Finanza e Finanza Aziendale Economia Intermediari Finanziari Economia Aziendale	9

- 1) In a population of consumers the regression of the binary variable  $Y$  – equal to one if the consumer buys a specific good, equal to zero otherwise - on the consumer monthly income ( $X$ , in euros) is:

$$E\{Y|X\}=0.2+0.0003*X$$

- The distribution of  $Y$  does not depend on the consumer income
  - The probability to buy the good for a consumer with 1,000 euros a month is 0.5.
  - The covariance between  $Y$  and  $X$  is 0.0003.
  - A consumer with 1,000 euros a month is 0.3 more likely to buy the good than a consumer with 900 euros a month.
- 2) Let  $q(t)$  be the  $t$ -th percentile of the continuous random variable  $X$ , with  $F(x)$  and  $f(x)$  its distribution and density functions, respectively.  $\Pr(X > q(t)) = \dots$
- 1-t
  - 1-F(t)
  - 1-f(t)
  - 1-q(t)
- 3) Let  $F(x)$  be the distribution function of the random variable 'nr. of household members' for households living in country XXX. It is known that  $F(2)=0.8$ . That is...
- 80% of the households include 2 members
  - 80% of the households include less than 2 members
  - 20% of the households include more than 2 members
  - 20% of the households include at least 2 members
- 4) To estimate the *unknown* number of balls in a box ( $N$ ): step 1, draw 100 balls from the box and paint them red; step 2, insert the red balls in the box and properly reshuffle the content of the box; step 3, randomly draw 100 balls from the box and count the number of red balls. Let it be  $X$ . Then estimate  $N$  as....
- $100*X$
  - $100/X^2$
  - $100^2/X$
  - $100/(2*X)$

- 5) At the .95 level of confidence the proportion of students completing the first level degree within three years is in the interval (.45, .52). That is...
- The probability of graduation within three years for a randomly chosen student is .95.
  - The true value of the probability belongs to the interval (.45, .52) with a confidence of .95.
  - 95% of the students graduate within three years with a probability belonging to the interval (.45, .52).
  - 95% of the students graduate within three years with a probability *not* belonging to the interval (.45, .52).
- 6) The null hypothesis is that X is uniform over the interval (0, 1), the alternative hypothesis is that X is uniform over the interval (1, 2). One observation is randomly drawn from X and the null hypothesis is rejected if it is larger than 1.
- The probability of the type I error is zero, while the probability of the type II error is .5.
  - The probability of the type I error is larger than the probability of the type II error.
  - The probabilities of the type I and of the type II errors are equal and larger than zero.
  - Both probabilities of error are equal to zero.
- 7) The domain of the function  $f(x) = \exp(x^2 - 1)$  is
- all real numbers different from  $-1$  and  $1$
  - the real line
  - all real numbers less than or equal to  $-1$ , or greater than or equal to  $+1$
  - all real numbers strictly less than  $-1$ , or strictly greater than  $+1$
- 8) The function  $g(x,y) = (x-2)^2 + y^2$
- has no stationary point
  - has a stationary point at  $x = 2, y = 0$
  - has a stationary point at  $x = 0, y = 2$
  - has a straight line of stationary points
- 9) The function  $f(x) = \ln(x^2 - 4x + 4)$  :
- has no minimum point
  - has a global minimum point at  $x = 2$
  - has a local minimum at  $x = 2$
  - has a local maximum at  $x = 2$
- 10) The integral of the continuous function  $f(x) = 2x \exp(x^2 + 1)$  over the interval  $[0, 1]$ :
- is 0
  - is  $e^1$
  - is  $e^2 - e^1$
  - does not exist
- 11) Let  $A$  and  $b$  be a  $3 \times 3$  matrix and a 3-dimensional vector, respectively; if the rank of  $A$  is 2, then
- the system of linear equations  $Ax = b$  does not have any solution
  - the system of linear equations  $Ax = b$  has infinitely many solutions

- the system of linear equations  $Ax = b$  has a unique solution
- the system of linear equations  $Ax = 0$  has infinitely many solutions

12) As  $x$  goes to  $+\infty$  the function  $f(x) = \exp(x^2) / \ln(x^6 + 1)$

- goes to  $+\infty$
- goes to  $-\infty$
- goes to 0
- does not exist

13) In a monopoly (without price – discrimination):

- A profit maximizing monopolist can charge any price by artificially restricting supply
- The monopolist will never sell at a price which lies in the inelastic portion of its demand curve
- The output produced typically exceeds the social optimum
- The monopolist can choose prices but not quantities

14) Andrew is indifferent between one unit of  $x$  and 2 units of  $y$ . Which of the following functions describes his preferences?

- $U(x,y) = \min(x,y)$
- $U(x,y) = 2x + y$
- $U(x,y) = \max(x,y)$
- $U(x,y) = x + 2y$

15) The term “tax incidence” refers to:

- The effects of taxation upon investment returns
- On which amount a tax is paid by the consumer and on which amount by the producer
- Whether a tax is paid directly by the consumer to the State or it is collected by the producer on behalf of the State
- None of the above

16) The relationship between the nominal interest rate ( $i$ ), the real interest rate over the same period ( $r$ ), and the inflation expectation over the same period ( $\pi$ ) is approximately:

- $r = i - \pi$
- $r = i + \pi$
- $i = r - \pi/r$
- $i = \pi/(1+r)$

17) In a game with the following payoff matrix where player 1 has two strategies (up, down) and player 2 has two strategies (left, right):

		Player 2	
		Left	right
Player 1	Up	3,2	1,1
	Down	0,0	2,3

- There is no Nash equilibrium in pure strategies
- The only Nash equilibrium in pure strategies is (up,left)
- The only Nash equilibrium in pure strategies is (down,right)
- There are two Nash equilibria in pure strategies: (up,left) e (down,right)

18) The Keynesian consumption function maintains that

- An increase in income will lead to an increase of consumption by the same amount
- An increase in disposable income will lead to an increase of consumption by the same amount
- An increase in disposable income will lead to an increase of consumption of a smaller amount
- An increase of income net of taxes will lead to an increase of consumption by the same amount

19) When a good is inferior

- Consumption of that good does not change with income
- The Engel curve is positively sloped
- Consumption of that good decreases when income increases
- The relationship between consumption and income depends on the price of the good

20) The Phillips curve shows

- the relationship between the change in inflation and the change in unemployment
- the impact of a tax increase on tax revenues
- the relationship between the change in government spending and the change in income
- the relationship between the change in income and change in income inequality

21) The unemployment rate of a country refers to:

- People unemployed over the total population of that country
- People unemployed over people employed in that country
- People unemployed over people in the labor force in that country
- People who have just quit the labor force of that country

22) Net working capital refers to:

- fixed assets minus long term liabilities.
- current assets minus current liabilities.
- inventories minus operating debts.
- receivables minus payables.

23) Depreciation and amortization expenses are:

- Part of current assets reported on the balance sheet.
- After-tax expenses that reduce a firm's cash flows.
- Non-cash expenses that cause a firm's after-tax cash flows to not exceed its net income.
- Non-cash expenses that cause a firm's after-tax cash flows to exceed its net income.

24) Which of the following items is not included in the profit and loss account (P&L):

- Gross Profit
- Controllable expenses
- Interests expenses
- Loan financing.

25) If you were a bondholder lending to a firm and you were worried that stockholders would take advantage of you, which of the following actions would concern you the most?

- A cut in the dividends paid to stockholders
- A reduction in debt

- Expansion into a risky new business
- A new stock issue

26) If markets are efficient, you should see the acquiring firm's stock price drop if it pays a premium over the market price to acquire a target firm

- True
- False
- True, only if the target's market price was overvalued
- Cannot say anything ex ante

27) You are reviewing a five-year monthly return regression of returns for The LeQuint Dickey Co., a U.S.-based media company, against the S&P 500:

$$\text{Return}_{\text{LeQuint Dickey}} = 0.25\% + 0.80 \text{ Return}_{\text{S\&P 500}} \quad R^2 = 0.25$$

After a recent statistics class, you are concerned about the low R-squared in this regression. You also find that The LeQuint Dickey is a NASDAQ stock and that the  $R^2$  improves significantly (to 50%) if the returns are regressed against the NASDAQ. In estimating a beta for a stock for use with the CAPM, which of the following indices should you use?

- The index which your stock is part of (NASDAQ).
- The index for the sector to which your firm belongs (media and entertainment).
- The index that gives you the highest R-squared.
- The broadest index in terms of risky assets represented

28) An EU investor bought a one-year Singapore security valued at 200.000 Singapore dollars (S\$), equivalent to euro 100.000. The Singapore security earned 15 percent during the year, but the Singapore dollar depreciated five cents against Euro during the time-period. After transferring the funds back to the EU, what was the investor's return on his/her invested capital?

- 26,50%
- -48,25%
- 3,50%
- 5%

29) One concern that banks have when they lend to companies is that their interests are different from those of the stockholders running these companies. If you move to a system where lenders' interests are unprotected, which of the following would you expect to observe on lending and interest rates?

- No effect on either borrowing or interest rates
- More money will be lent at lower interest rates
- More money will be lent at higher interest rates
- Less money will be lent at higher interest rates

30) A bank charges a fee whenever a customer withdraw cash from an ATM. As a result, the marginal effect on that bank financial statement will result in:

- A lower value on deposit and a higher margin from services.
- No effects on deposit and a higher margin from services.
- No effects on deposit and a lower margin from services.
- A lower net interest margin fully offset by a higher margin from services.