

## MEF VERSIONE B

- 1) The Keynesian multiplier is large when
  - a) The income tax rate is high
  - b) The import share of national income is high
  - c) The interest rate elasticity of investment is low
  - d) Government deficit is low
  
- 2) In a liquidity trap
  - a) The central bank cannot change the interest rate
  - b) Money demand is zero
  - c) The IS curve intersects the LM curve when the LM curve is flat
  - d) Fiscal policy is less effective
  
- 3) The natural rate of unemployment is
  - a) The number of currently unemployed people divided by number of working-age population
  - b) The rate of unemployment consistent with a constant rate of inflation
  - c) The rate of unemployment consistent with a zero rate of inflation
  - d) The rate of unemployment targeted by the Central Bank
  
- 4) A deficit in the current account means that
  - a) The value of exports is smaller than the value of imports
  - b) Government spending is greater than tax revenues
  - c) Government debt is increasing
  - d) Domestic bonds earn a higher interest rate than foreign bonds
  
- 5) A devaluation of the currency increases net exports
  - a) Always
  - b) Never
  - c) Only if a condition on the elasticity of imports and exports with respect to the currency holds
  - d) Only if domestic prices fall
  
- 6) The effect of a negative demand shock on output is larger
  - a) When exchange rates are flexible
  - b) When exchange rates are fixed
  - c) The exchange rate regime does not matter
  - d) Depends on the characteristics of the demand shock
  
- 7) A consumer's utility function is  $U(x,y)=3x+y$  where  $x$  and  $y$  are two consumption goods. Let  $p_x$  and  $p_y$  be the market prices and suppose that  $p_x/p_y > 3$ . What will the consumer's choice be?
  - a) the consumer will spend all his/her income for good  $y$
  - b) the consumer will spend all his/her income for good  $x$
  - c) the consumer will spend one third of his income for  $x$  and two thirds for  $y$
  - d) the consumer will spend one third of his income for  $y$  and two thirds for  $x$

- 8) Let  $12 - x = p$  be the inverse demand function of good  $x$  and let  $p$  be the price of  $x$ . The elasticity of  $x$  with respect to  $p$  evaluated at  $x=6$  is, in absolute value:
- $1/2$
  - $2$
  - $1$**
  - undetermined
- 9) Consider a profit maximising firm which hires labour and capital as inputs. Inputs are complements, although not perfect complements, and their prices are given. Suppose that the firm wants to produce a given amount  $y$  of output. How should labour and capital be combined in order to minimise production costs?
- only the cheapest input should be acquired
  - since inputs are complements, the firm's budget should be equally split between the two inputs
  - inputs should be acquired in amounts such that the marginal productivity per euro spent is equalized between the two inputs**
  - inputs should be acquired in amounts such that the marginal productivity of the two inputs is equalized
- 10) The Cauchy's problem  $y' = y^2x$  with  $y(1) = 0$
- has a unique solution which is strictly decreasing
  - has no solutions
  - has a unique solution which is strictly increasing
  - has a unique solution which is constant**
- 11) The domain of the function  $f(x) = \ln \left| \frac{x-1}{x^2+1} \right|$  is
- $\mathbb{R}$
  - $\mathbb{R} \setminus \{-1\}$
  - $\mathbb{R} \setminus \{+1\}$**
  - $\mathbb{R} \setminus \{-1, +1\}$
- 12) Let  $A$  be a matrix with 3 rows and 3 columns. The linear system  $Ax=b$
- has a unique solution
  - has a unique solution if and only if  $\det A=0$
  - has a unique solution if and only if the matrix  $A$  is invertible**
  - has a unique solution if and only if the rank of the matrix  $(A|b)$  is 3
- 13) The point  $P$  is stationary for the function  $f$  if and only if the gradient of  $f$  at  $P$  is equal to the vector  $0$ . Let us assume that the Hessian matrix of the function  $f$  is positive definite at a stationary point  $P$ , then
- $P$  is a local minimum point**
  - $P$  is a global minimum point
  - $P$  is a local maximum point
  - $P$  is a global maximum point
- 14) As  $x$  goes to  $0$  the function  $f(x)=(1-\exp(x))/x$

- a) goes to 0
- b) goes to  $+\infty$
- c) goes to  $-\infty$
- d) goes to -1

15) Let us consider the integral  $\int_{-e}^{-1} 1/x dx$

- a) it does not exist because we cannot take the logarithm of a negative number
- b) it does not exist because an area cannot be negative
- c) it exists and it is equal to 1
- d) it exists and it is equal to -1

16) The confidence intervals for the variance of the random variable X at level 0.93 and at level 0.87 are evaluated on a specific sample.

- a) The 0.93 interval includes the other one.
- b) The 0.87 interval includes the other one.
- c) Neither includes the other.
- d) It can't be said how the two intervals relate one to the other.

17) The qualitative variable Y='Occupation' takes on the following four values: White Collar=1, Blue Collar=2, Manager=3, Self Employed=4. The regression of Y on X='number of years of schooling' is run to check whether the level of education matters for occupation. The coefficient on X turns out not statistically significant at any conventional level.

- a) Education does not matter for occupation.
- b) Ok, the effects is not statistically significant but this is only because a finer classification of occupations should be used.
- c) The regression is meaningless: a qualitative variable can't be specified this way as a dependent variable in a regression.
- d) Fine, but to confirm this result the regression should be run changing the coding of the occupations (i.e. Manager=1, White Collar=4....).

18) The mean squared error of two different estimators are 5 and 3. When applied to a specific sample they yield estimates as large as 3.2 e 5.7, respectively. The true value of the parameter is closer to 5.7 than to 3.2.

- a) Yes
- b) Who knows?
- c) Yes but only if the sample is drawn from a Gaussian distribution.
- d) No, it is closer to 3.2.

19) In the true regression of Y on the explanatory variables X and Z both regression coefficients are positive. Moreover the correlation between Z and X is negative. The regression is mistakenly run omitting Z from the list of explanatory variables. As a result, the estimate of the coefficient on X is

- a) Still unbiased.

- b) Upward biased.
- c) Downward biased.
- d) Biased but nothing can be said on the sign of the bias.

20) In an hypothesis testing problem the level of the test is 0.20. As applied to a specific sample the null hypothesis turns out as *not rejected*. A reader of this result argues that the level of the test is too high for the result to be credible and suggests reducing it to 0.10.

- a) Yes, the reader is right: changing the level of the test to 0.10 might change the result.
- b) No, the reader is wrong. No need to try at the level 0.10: if the null is not rejected at the level 0.20 it is *a fortiori* not rejected at the level 0.10.
- c) No, the reader is wrong. No need to try at the level 0.10: if the null is not rejected at the level 0.20 it is rejected *for sure* at the level 0.10.
- d) The reader is right but reducing the level of the test to 0.10 is not enough: much better to reduce it to 0.05.

21) In the regression of Y on the continuous explanatory variable X the square of X is added as an explanatory variable.

- a) It is included because otherwise the coefficient on X would not be the effect of X on Y keeping  $X^2$  fixed.
- b) It is included to allow the effect of X on Y to be nonlinear .
- c) It is included to improve the results in case X is affected by measurement error.
- d) It is included to improve the results in case the disturbance term is heteroschedastic.

22) Which of the following is not a defining quality of a bond?

- a) Dividend yield.
- b) Maturity.
- c) Face value.
- d) Coupon payment frequency.

23) If an asset has a beta of one, then it can be described in which of the following ways?

- a) It is very risky.
- b) It is risk free.
- c) It is riskier than the market portfolio.
- d) It has the same risk as the market portfolio.

24) Which of the following is considered a noncash expense on the income statement?

- a) Income taxes
- b) Depreciation
- c) Interest expense
- d) Wages and salaries

25) Which of the following is correct? A zero coupon bond \_\_\_\_\_.

- a) typically pays coupons only during the first five years
- b) sells for a price that is greater than the face value
- c) provides no cash flow to the holder at maturity

d) is also known as a discount bond

26) The government has been trying to decide whether or not to purchase any of the new, advanced missiles it has developed. One of the arguments in favor of purchasing the missiles is that so much money has been spent on their development that it would be a waste of money not to buy any. What is the major problem with this argument?

- a) It ignores the opportunity cost of the money that has been spent
- b) It includes sunk costs in the decision
- c) It includes opportunity costs in the decision
- d) It includes changes in net working capital

27) Which of the following is true about the WACC?

- a) The WACC is the appropriate discount rate for all new projects being considered by the existing firm
- b) The optimal capital structure is the one that maximizes the WACC
- c) The value of the firm will be maximized when the WACC is minimized
- d) Since discount rates and values move in the same direction, minimizing the WACC will minimize the value of the firm's cash flows

28) The ROI – *Return on Invested Capital* is calculated as follow:

- a) Net income/Shareholder equity
- b) Operating profit margin/(Financial debts + Equity)
- c) EBITDA/(Operating debts + Equity)
- d) EBIT/(Financial debts + Operating Debt + Equity)

29) An allowance for doubtful debts should be accounted as:

- a) Decrease in equity
- b) Long term assets
- c) Extraordinary costs
- d) Operating costs

30) Company's shareholders are:

- a) Any person, company or institution that owns at least one share in the company
- b) The most relevant individuals able to influence company's results
- c) Persons, groups or organizations that have interests or concerns in the company
- d) The holders of the most relevant stakes in the board of directors