

MSc (Economics) Entrance Exam Sample Paper

Disclaimer: The sample questions below are only meant to provide an idea about the possible type of questions that might be asked in the entrance examination. These questions are not meant to provide any suggestions regarding the difficulty level of the actual entrance examination or the topics going to be covered therein.

Question 1

Let N be the set of natural numbers i.e. $N = \{1, 2, 3, \dots\}$. Let

$$X = \{x \in N : x \leq 20 \text{ and } \frac{x}{2} \in N\}$$

$$Y = \{x \in N : 8 < x < 24 \text{ and } \frac{x}{4} \in N\}$$

What is $(X \cap Y) - (X \cup Y)$? (Note that $(X \cap Y) - (X \cup Y) = \{x \in N : x \in X \cap Y \text{ and } x \notin X \cup Y\}$.)

- (a) $\{10, 12, 14, 16, 18, 20\}$
- (b) $\{12, 16, 20\}$
- (c) $\{8, 12, 16, 20\}$
- (d) \emptyset

Question 2

Consider a closed economy where government expenditures are 10 and total tax revenues are also 10. The supply of labor is fixed at 125 and the supply of capital is fixed at 8. The economy is described by the following equations:

$$Y = K^{0.5}L^{0.5}$$

$$C = 2.5 + 0.75(Y - T)$$

$$I = 10 - 0.5r$$

Per the national income accounting identity, what is the level of private investment?

- a) 7.5
- b) 2.5
- c) 5
- d) 17.5

Question 3

Consider the following game

	Head-Player 2	Tail-Player 2
Head-Player 1	1,-1	-1,1
Tail-Player 1	-1,1	1,-1

Which of the following statements is correct?

- a) There are no Nash equilibria
- b) There is a unique Nash equilibrium and it is in mixed strategies.
- c) There are multiple Nash equilibria, some in mixed strategies and other in pure strategies
- d) All the Nash equilibria are in pure strategies.

Question 4

Denote the total money supply (M) as the product of the monetary base (MB) and the money multiplier (m). The money supply has two components, currency in circulation (C), and demand deposits in the banking system (D). The monetary base is composed of currency plus reserves held in the banking system. Express the reserve ratio as r, and the ratio of currency to deposits as k. What is the expression for the money multiplier?

- a) $m = (1 - r)D$
- b) $m = \frac{k+1}{k+r}$
- c) $m = 1 + \frac{1-r}{k}$
- d) $m = 1 + \frac{k}{r}$

Question 5

Suppose the following sentence is true:

If Fazlul is a member of parliament, then he is at least 25 years old.

On the basis of this information, which of the following must be true?

- (a) Fazlul is a member of parliament.
- (b) If Fazlul is less than 25 years old, then he is not a member of parliament.
- (c) If Fazlul is not a member of parliament, then he is less than 25 years old.
- (d) None of the above.

Question 6

The contents of urns A, B and C are as follows: 1 white, 2 black and 3 red balls; 2 white, 1 black and 1 red balls; and, 4 white, 5 black, and 3 red balls. One urn is chosen at random and two balls are drawn from it. They happen to be black and red. What is the probability that they come from urns A, B or C?

- (a) $33/118$, $55/118$, $30/118$
- (b) $88/524$, $110/524$, $326/524$
- (c) $25/118$, $65/118$, $28/118$
- (d) $264/524$, $110/524$, $150/524$

Question 7

Consider the equation $x^2 + y^2 = 20$. How many integer solutions (x, y) exist?

- (a) None
- (b) 2
- (c) More than 2 but finite
- (d) Cannot be determined

Question 8

We denote as R_{it} , the relative return on assets held in Indian rupees compared to assets denominated in US dollars. Call the prevailing interest rates in the two countries i_{it} and i_{us} . The expected annual change in the rupee-dollar exchange rate is e . Assuming complete mobility of financial capital between the two countries, an expected 3% decline of the rupee, and $i_{us} = 4\%$, what would the prevailing interest rate in India be?

- a) $i_{it} = 7\%$
- b) $i_{it} = 1\%$
- c) $i_{it} = -1\%$
- d) $i_{it} = 4\%$

Question 9

Let $Y^* = \alpha + U$, where $U \sim N(0, \sigma^2)$ and α is a constant. Define

$$Y = 1 \text{ if } Y^* > 0$$

$$= 0 \text{ if } Y^* \leq 0$$

Let $\Phi(\cdot)$ denote the CDF of a standard normal variable. $P(Y = 1)$ is given by

- a. $\Phi(\alpha)$
- b. $\Phi\left(\frac{\alpha}{\sigma}\right)$
- c. 0.5
- d. None of the above

Question 10

The inverse of the matrix

$$\begin{bmatrix} 1 & 2.5 \\ 2 & 6 \end{bmatrix}$$

is

(a) $\begin{bmatrix} 6 & -2 \\ -2.5 & 1 \end{bmatrix}$

(b) $\begin{bmatrix} 6 & -2.5 \\ -2 & 1 \end{bmatrix}$

(c) $\begin{bmatrix} 1 & -2.5 \\ -2 & 6 \end{bmatrix}$

(d) $\begin{bmatrix} 1 & -2 \\ -2.5 & 6 \end{bmatrix}$