

## Sample Questions for the Economics Module

### Subtest “Analysing Economic Interrelationships”

In the subtest “Analysing Economic Interrelationships,” you are to analyse and interpret economic diagrams, charts and tables.

This test measures mainly your ability to differentiate between relevant and unimportant data and to draw the correct conclusion from the information given. Background information will be provided if necessary.

### Instructions

Working time: **60 minutes**

In the following items, economic interrelationships are depicted in a graph or table. Your task is to analyse these interrelationships and interpret them correctly.

For each item, choose the correct answer (A, B, C or D) and mark the appropriate letter on your answer sheet.

#### **General recommendations on taking the “Analysing Economic Interrelationships” test:**

In this test you will encounter various types of illustrations: **curve graphs** (cf. Item 2), **column or bar graphs** (cf. Item 3), **pie graphs** (cf. Item 1) and **tables**.

In curve and column graphs, pay special attention to the **units** with which the axes are marked. In the simplest case, you will find **absolute numbers** (e.g. the number of residents or the price in Euros). But sometimes the axis will represent **percentages** (e.g. the percentage of the population of a country). In the latter case, it is difficult to keep track of the overall number to which the percentage refers. Ten percent of the U.S. population is naturally a greater number of persons than ten percent of the population of Germany.

Experience has shown that graphs depicting **percentage changes** (cf. Item 3) are particularly difficult.

As a little exercise, check Statements III and IV against the graph in Item 3:

**Statement III:** In the first quarter of 2001 the earnings were greater than in the second quarter of 2001.

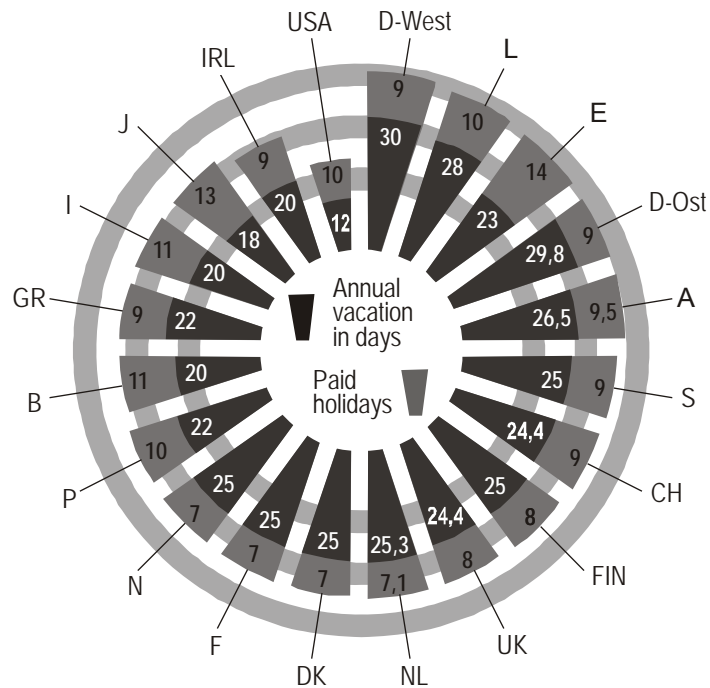
The statement may appear correct at first sight. But **be careful:** The statement **cannot be evaluated** on the basis of the graph, since it would be wrong to compare the bars with one another (cf. above). It is entirely possible that the earnings in 2/2001 were greater than in 1/2001; but it is also possible that they were smaller. Since we do not know the answer, **the statement is incorrect**.

**Statement IV:** In the fourth quarter of 2003, the earnings were smaller than in the fourth quarter of 2000.

**This statement is incorrect.** In 4/2001 the earnings were one percent greater than in 4/2000. In 4/2002 they were about 0.5 percent greater than in 4/2001, and in 4/2003 they were slightly lower than in 4/2002. Altogether, the earnings in 4/2003 were therefore more than one percent greater than in 4/2000

## Example 1

### Annual vacation (in days) and paid holidays of employees in various countries



Which of the following statements is / are correct?

- I. There is no country with fewer annual vacation days than the USA.
- II. Of all countries, Spain (E) has the greatest number of paid holidays.

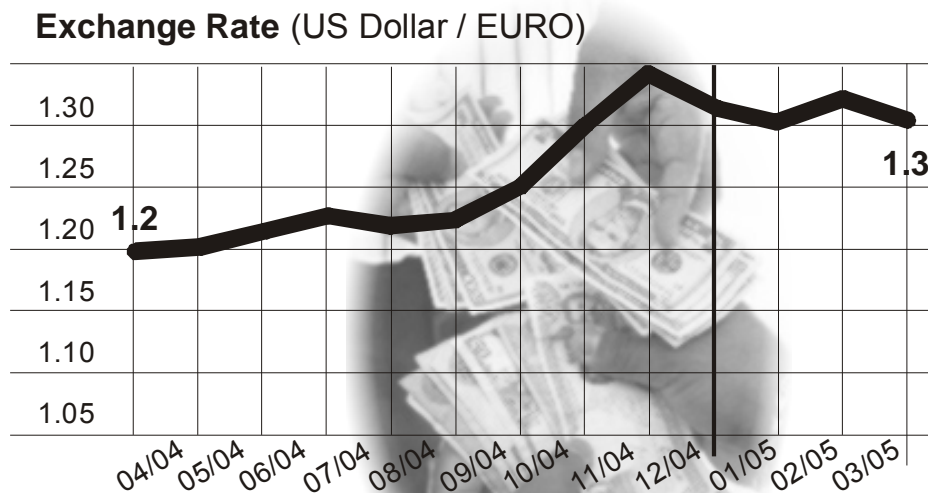
- (A) Only Statement I is correct.
- (B) Only Statement II is correct.
- (C) Both statements are correct.
- (D) Neither of the two statements is correct.

Degree of difficulty: low

### Example 2

The illustration shows the development of the US Dollar / Euro exchange rate from the beginning of April 2004 to the beginning of April 2005. It shows how many US Dollars one Euro was worth. The value of the dollar in Euros can easily be calculated.

#### Development of the US Dollar / Euro Exchange Rate



Which of the following statements is / are correct?

- I. The value of the Euro (in US Dollars) increased by ten percent from April to the end of October 2004.
- II. Anyone who exchanged 1,000 Euros for dollars at the end of November 2004 received more than 1,000 Euros when re-exchanging the money at the end of March 2005.

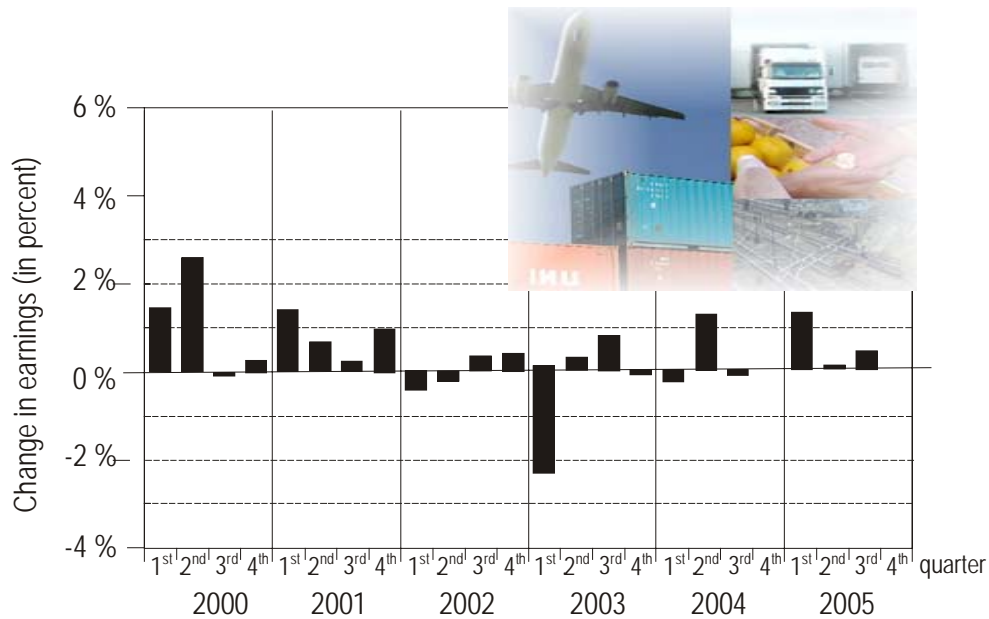
- (A) Only Statement I is correct.  
(B) Only Statement II is correct.  
(C) Both statements are correct.  
(D) Neither of the two statements is correct.

Degree of difficulty: medium

### Example 3

The illustration shows the change in earnings in commerce from the beginning of 2000 to the end of 2005. For each year, the chart shows the percentage by which the earnings changed in the first, second, third and fourth quarters of the year in comparison to the same quarter of the previous year.

### Change in Earnings in Commerce (in each case: the change with regard to the same quarter of the previous year)



Which of the following statements is / are correct?

- I. In the first quarter of 2003, the earnings were more than two percent lower than the earnings in the first quarter of 2002.
- II. In the fourth quarter of 2004, the earnings were exactly as high as in the fourth quarter of 2003.

- (A) Only Statement I is correct.  
(B) Only Statement II is correct.  
(C) Both statements are correct.  
(D) Neither of the two statements is correct.

Degree of difficulty: high

## Solutions

### Subtest “Analysing Economic Interrelationships“

#### Example 1

This item is very simple. You need only read the individual values in the diagram. Statement I is correct, since the employees in the USA have an average of only 12 days of annual vacation. In all other countries, the employees have more annual vacation days.

Statement II is also correct, since the employees in Spain have an average of 14 paid holidays. In all other countries, the number of paid holidays is smaller. Therefore (C) is the right answer and is to be marked on the answer sheet.

#### Example 2

This diagram shows how many dollars were received for one Euro over a course of twelve months. The value of the dollar in Euros can be calculated easily:

1 Euro corresponds to 1.2 dollars; 1 dollar accordingly corresponds to 0.83 Euro ( $1 / 1.2 = 0.83$ ).

Statement I is incorrect, since an increase from 1.2 dollars per Euro to 1.3 dollars per Euro is less than ten (approximately eight) percent.

Statement II is correct, since - as the curve shows - one Euro was worth 1.35 dollars (and 1,000 Euros was accordingly worth 1,350 dollars) at the end of November 2004. At the end of March 2005, one Euro was worth 1.3 dollars, so 1,350 dollars were worth more than 1,000 Euros in any case.

(B) is therefore the correct answer to this item.

#### Example 3

To decide whether the statements are correct or not, it is necessary to read the caption of the vertical axis carefully and interpret it correctly. The bar chart does not show absolute numbers, but rather changes in comparison to the same quarter of the previous year (in percent). The first bar (I/2000) thus shows that the profits in the first quarter of 2000 were 1.5 percent greater than in the first quarter of 1999. We do not know how high the profits in I/2000 were; that information cannot be derived from the chart. What that means is that the bars cannot be compared with one another.

Statement I is correct. We can determine this immediately on the basis of the length of the bar: In I/2003 the profits were more than two percent less than in I/2002.

Statement II is likewise correct. There is no bar visible for IV/2004. That means there was neither a positive nor a negative change. The profits in IV/2004 were therefore exactly as high as in IV/2003.

Therefore (C) is the right answer.

## Subtest "Analysing Processes"

In the subtest "Analysing Processes," you are to formalise sequences of events and analyse flow charts.

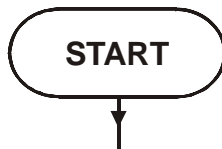
This test measures mainly the ability to convert concrete economic facts into models and to think within the context of formalised systems. It also measures critical thought in the sense that given facts are tested for correctness and not accepted as true a priori.

### Instructions

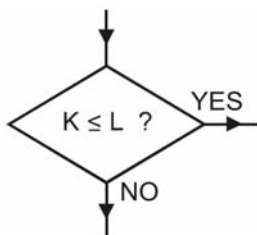
Working time: **85 minutes**

In this group of items, a process or a model has to be transferred to a flow chart or a given flow chart has to be analysed.

The flow charts can contain the following **elements**:



**Beginning** of the process

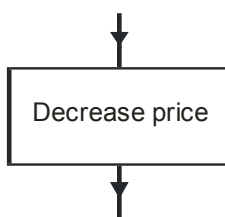


**Decision point:** The further process depends on the answer given to the question set here.

Example: If the question "K ≤ L?" is answered with "YES", then the path marked "YES" has to be followed.

If the question "K ≤ L?" is answered with "NO", then the path marked "NO" has to be followed.

(The answer to the question "K ≤ L?" is "YES" if quantity K is smaller than quantity L, or if both quantities are of equal size. The answer is "NO" if K is larger than L.)



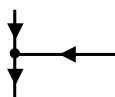
**Operation** that is carried out, or an alternative that is selected. In the example, the price is decreased.

**Examples of notation:**

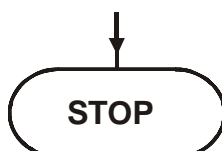
M:= 2 M is allocated a value of 2.

M:= M + 1 the value of M is increased by 1.

M:= M – N the value of M is decreased by the value of N.



**Joining together:** Two "paths" are joined together to form a joint "path".



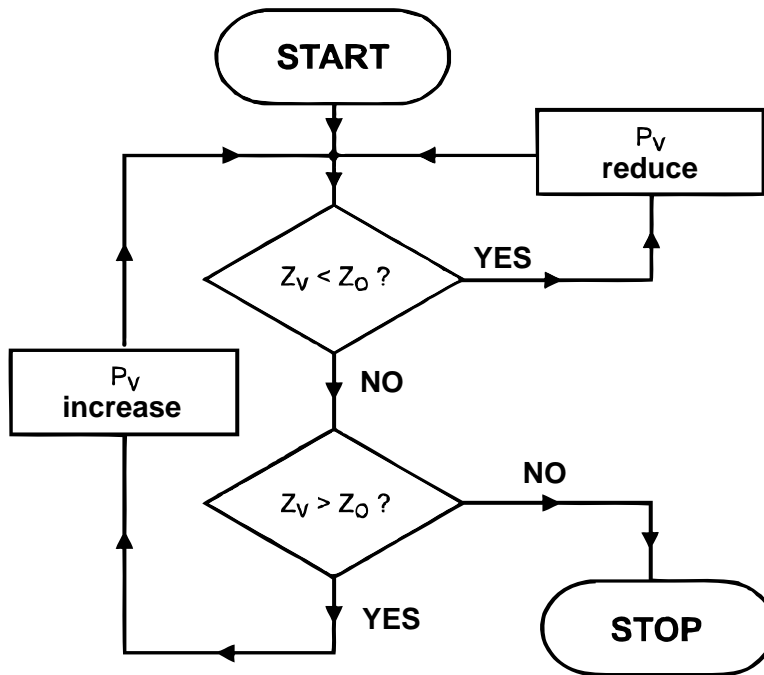
**End** of the process

### Example 1

In the case of a certain product, the number sold per day,  $Z_V$ , increases, the lower the sales price  $P_V$ . Conversely, the higher the  $P_V$ , the lower the  $Z_V$ .

A company employee has determined that it is optimal for the company when the number of pieces sold per day is  $Z_0$ .

The process diagram shows a strategy which is to lead to the number sold per day amounting to  $Z_0$  at the end ("STOP").



Which of the two statements about the strategy is/are correct?

- I. If not enough pieces are sold, the sales price is – correctly – reduced.
- II. It can happen that a sales price which is already too low is further reduced.

- (A) Only statement I is correct.
- (B) Only statement II is correct.
- (C) Both statements are correct.
- (D) Neither of the two statements is correct.

Degree of difficulty: low

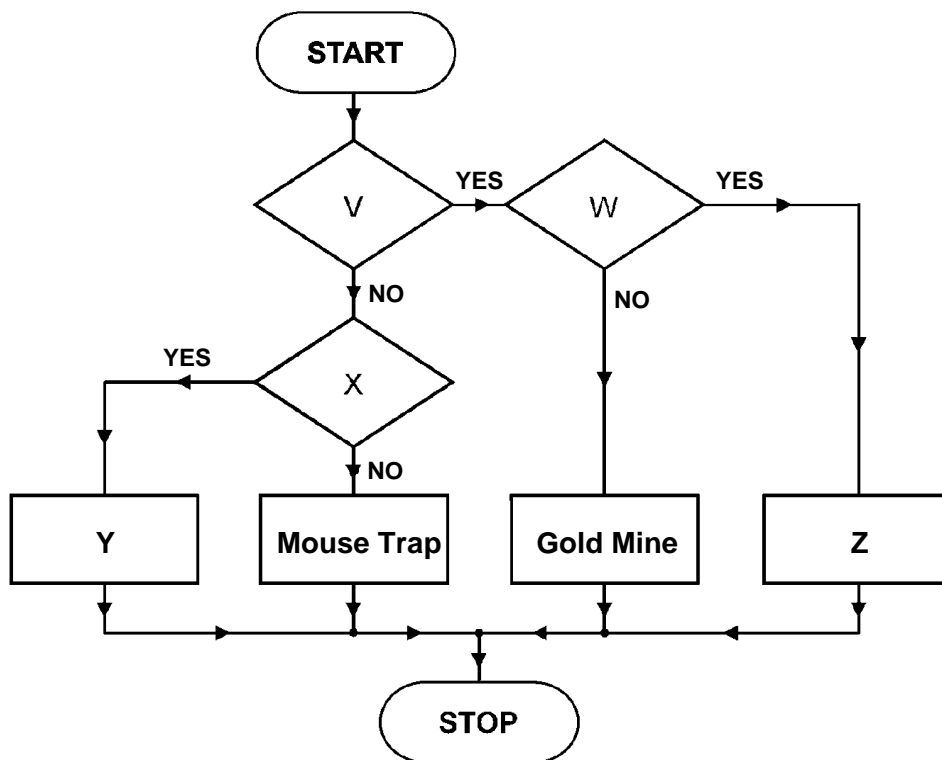
### Example 2

Markets (for example the automobile market in Germany) have an entry barrier and an exit barrier. The **entry barrier** supplies information as to how difficult it is for a new provider to enter the market – for example to sell cars in Germany. The **exit barrier** supplies information as to how difficult it is to exit (leave) the market again.

Here distinctions are made between **four types of markets**:

- “flea market”: low entry barrier, low exit barrier
- “mouse trap”: low entry barrier, high exit barrier
- “gold mine”: high entry barrier, low exit barrier
- “gilded cage”: high entry barrier, high exit barrier

Complete the process diagram in such a way that it assigns each market to the correct position.



Which of the two statements is/are correct?

- Decision Point V could read: “exit barrier high?”.
- Element Y could read: “Gilded Cage.”

- (A) Only statement I is correct.  
(B) Only statement II is correct.  
(C) Both statements are correct.  
(D) Neither of the two statements is correct.

Degree of difficulty: medium

### Example 3

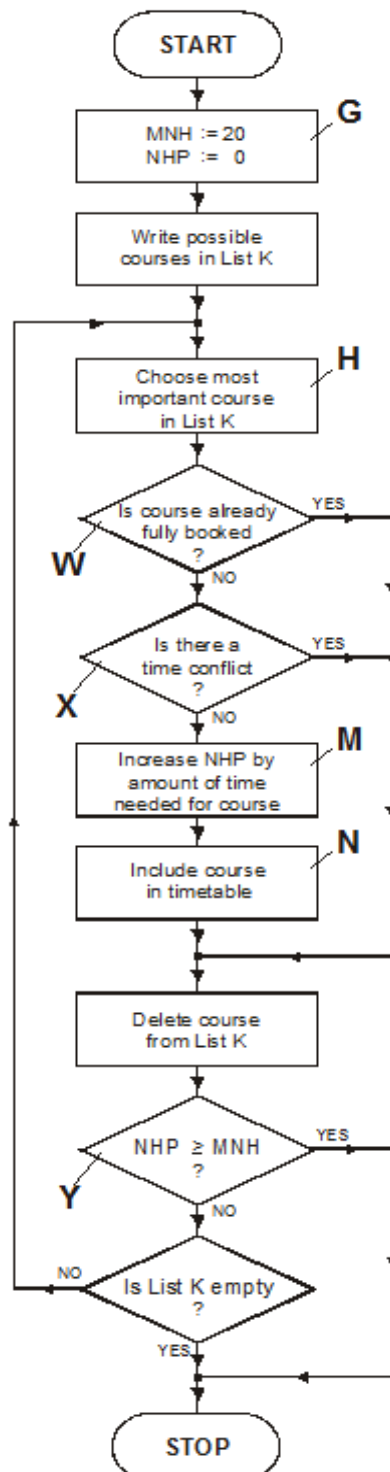
University entrant Schmidt is writing his timetable for his first semester. The process diagram shows how he proceeds.

**MNH:** Maximum number of hours that Schmidt has time for courses each week.

**NHP:** Number of hours that Schmidt has already planned in for courses each week.

**"fully booked"**: a course is fully booked when no more places are free.

**"time conflict"**: The course Schmidt has to decide about takes place at the same time as a course already in the timetable.



Which of the following statements is/are correct?

- I. It is possible that Schmidt includes a course in the timetable for which he does not have enough time.
- II. It is possible that Schmidt includes a course in the timetable that is less important than a course that has not been included.

- (A) Only statement I is correct.
- (B) Only statement II is correct.
- (C) Both statements are correct.
- (D) Neither of the two statements is correct.

Degree of difficulty: high

## Solutions

### Subtest "Analysing Processes"

#### Example 1

Statement I refers to a situation in which too few pieces are sold. In such a situation,  $Z_v$  is smaller than  $Z_o$ . In this case, the answer to the question at Decision Point X (" $Z_v < Z_o$ ?") is "YES," and the operation "Reduce  $P_v$ " follows correctly. Statement I is therefore correct.

Statement II refers to a situation in which the sales price is too low. As a result, too many pieces are sold:  $Z_v$  is greater than  $Z_o$ . In this case, the answer to the question at Decision Point X (" $Z_v < Z_o$ ?") is "NO," and the answer to the question at Decision Point Y (" $Z_v > Z_o$ ?") is "YES." The operation "Increase  $P_v$ " thus follows correctly. Statement II is therefore false.

The correct solution to this item is therefore **A**.

#### Example 2

In the case of Statement I, it suffices to consider the following: Decision Point V must contain a question which, if its answer is "YES," corresponds to the market form "Gold Mine." If the answer to the question in Statement I ("exit barrier high?") is "YES," it does not correspond to "Gold Mine," since, in the case of the "Gold Mine," the exit barrier is low. Therefore Statement I is false.

In the case of Statement II it is necessary to recognize that there are two possible ways of completing the process diagram:

If the question at Decision Point V is "entrance barrier high?," then the question at Decision Point X must read "exit barrier low?" in order to correspond to the element "Mouse Trap," which is a given. In this case, "Flea Market" would be entered in Element Y.

It is also possible, however, that Decision Point V reads "exit barrier low?." In this case, the question at Decision Point X would have to read "entry barrier high?" in order to correspond to the Element "Mouse Trap." Element Y would then be "Gilded Cage." Statement II is accordingly correct.

The solution to this item is therefore **B**.

#### Example 3

Statement I is correct: Schmidt has a maximum of 20 hours time for courses per week (Element G: "MNH := 20"). Let us assume that 19 hours per week have already been planned for courses (NHP = 19). Now a course which lasts two hours per week is selected from the List K. The course isn't full yet and there is no time conflict (see Elements W and X). Under these conditions, NHP increases by two hours and the course is added to the weekly

schedule (see Elements M and N). The weekly schedule now comprises 21 hours (NHP = 21), even though Schmidt only has 20 hours at his disposal. This circumstance is reflected in Element Y, but no correction is made.

Statement II is also correct: Let us assume that a course selected from List K (see Element H) cannot be added to the weekly schedule because it is already full (see Element W). The next step is the selection of a less important course, which is not full yet and with which there is no time conflict, in Element H. This course is then added to the weekly schedule in Element N.

Therefore **C** is the solution to this item.