

## **Entrance examination**

**Academic Year 2025/2026**

**BACHELOR'S DEGREE STUDY PROGRAMME  
B0413P050064 ECONOMICS AND MANAGEMENT**

## Entrance examination sample test in Mathematics

30 mins / Mathematics – 10 items per 1 pt. / 10 points in total

- 1) 1 point: Give the equation of the line passing through the point (1,1) and having slope  $-2$
- a)  $y = -2x + 1$
  - b)  $y = -2x + 3$
  - c)  $y = -2x - 1$
  - d)  $y = -1x - 1$
  - e)  $y = x + 1$
- 2) 1 point: Simplify the following expression  $\frac{a^4 b^3 c}{a^4 b c^{-1}}$
- a)  $b^2 c^2$
  - b)  $bc$
  - c)  $bc^{-1}$
  - d)  $bc^{-2}$
  - e)  $b$
- 3) 1 point: Find the solutions (roots) of  $x^2 - 8x + 13 = 0$
- a)  $x = 4, x = -4$
  - b)  $x = 5, x = 8$
  - c)  $x = 4 - \sqrt{3}, x = 4 + \sqrt{3}$
  - d)  $x = 4 - \sqrt{8}, x = 4 + \sqrt{8}$
  - e)  $x = 4 - \sqrt{12}, x = 4 + \sqrt{12}$

- 4) 1 point:  $\log_2(16 \cdot 32) =$
- a) 2
  - b) 20
  - c)  $e$
  - d)  $16 \cdot 32$
  - e) 9
- 5) 1 point: Find the domain of function  $f(x) = e^x + \sqrt{1-x}$
- a)  $(0,1]$
  - b)  $\emptyset$
  - c)  $(-1,0) \cup (0,1)$
  - d)  $(-\infty, 1)$
  - e)  $(-\infty, 1]$
- 6) 1 point: What are the next 3 terms of a sequence that has a first term of -2, where the term to term rule is multiply by 2?
- a) -4, -6, -8
  - b) 4, 6, 8
  - c) 4, 8, 16
  - d) -4, -8, -16
  - e) -2, 4, -8
- 7) 1 point: Find the domain of function  $f(x) = \frac{10}{\sqrt{x-|x|}}$
- a)  $(-\infty, \infty)$
  - b)  $\emptyset$
  - c)  $(-1,0) \cup (0,1)$
  - d)  $(-\infty, 1)$
  - e)  $(-\infty, 1]$

8) 1 point: Solve  $-x^2 + 6x - 5 < 0$

- a)  $(-\infty, +\infty)$
- b)  $\emptyset$
- c)  $(-\infty, 1) \cup (5, \infty)$
- d)  $(1, 5)$
- e)  $(-\infty, 0]$

9) 1 point: Which of the following functions is decreasing?

- a)  $f(x) = -\log_{\frac{2}{3}} x$
- b)  $f(x) = \log_{\frac{2}{3}} x$
- c)  $f(x) = \log_2 x$
- d)  $f(x) = x - 15$
- e)  $f(x) = e^{2x}$

10) 1 point: Solve the following system of equations:

$$2x - 2y = 3$$

$$3x - 4y = 2$$

- a)  $x = -4, y = -\frac{3}{2}$
- b)  $x = \frac{3}{2}, y = 4$
- c)  $x = \frac{3}{2}, y = \frac{3}{2}$
- d)  $x = 4, y = \frac{3}{2}$
- e)  $x = 4, y = \frac{5}{2}$

### Key

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(1 point) 1 b, 2 a, 3 c, 4 e, 5 e, 6 d, 7 b, 8 c, 9 b, 10 e.

## Entrance examination sample test in English

30 mins / English – 15 items per 1 pt., 5 items per 2 pts / 25 pts in total

**Read the sentences and write the correct answers on your answer sheet.**

11) 1 point: Joel gave up \_\_\_\_ when he was 30.

- a) smoke
- b) smoking
- c) to smoke

12) 1 point: The butler was \_\_\_\_ I suspected.

- a) last person
- b) the last person
- c) a last person

13) 1 point: They arrived \_\_\_\_ Prague after two hours.

- a) on
- b) towards
- c) in

14) 1 point: Why didn't you tell me? If you had told me, I \_\_\_\_ .

- a) would have helped you
- b) will help you
- c) helped you

15) 1 point: By the time Sheila got back, Chris \_\_\_\_ .

- a) was left
- b) left
- c) had left

16) 1 point: I promise, I \_\_\_\_ the report by Tuesday.

- a) will be finished
- b) will finish
- c) will have finished

17) 1 point: We went out \_\_\_\_ the rain.

- a) despite
- b) although
- c) in spite

18) 1 point: I can't say \_\_\_\_ certain because not all the information has been confirmed.

- a) with
- b) for
- c) by

19) 1 point: Do you think the public in the EU is aware \_\_\_\_ unethical fashion?

- a) for
- b) of
- c) about

20) 1 point: \_\_\_\_ of being given quite impossible targets, we managed to achieve them.

- a) In spite
- b) Despite
- c) Owing to

**What function does each sentence have?**

21) 1 point: We are deeply sorry for any inconvenience caused by the delay.

- a) requesting
- b) offering
- c) apologising

22) 1 point: We regret to tell you that your application has been rejected.

- a) offering
- b) suggesting
- c) informing

- 23) 1 point: If there is anything else we can help you with, do not hesitate to contact us.
- a) requesting
  - b) apologising
  - c) offering
- 24) 1 point: I would be very grateful if you could help me find the right solution.
- a) requesting
  - b) suggesting
  - c) informing
- 25) 1 point: Answer all the questions in the form, please.
- a) ordering
  - b) apologising
  - c) offering

**Read the text and for each question choose the correct answer.**

Plastic is a big problem for the world. It is causing a lot of damage to our environment. It is polluting rivers and oceans and harming and killing wildlife. Plastic is a growing problem because it takes hundreds of years to break down. Many companies around the world are trying to replace plastic with other things. Coca-Cola has teamed up with a Danish start-up called the Paper Bottle Company ("Paboco" for short) to make a paper bottle. Coca-Cola hopes to completely stop using plastic for its drink bottles. It was ranked as the world's number one plastic polluter in 2019. In one year, it uses around three million tons of plastic packaging. A lot of this is not recycled.

Paboco asked us to: "Imagine that all plastic packaging in your store has disappeared." Coca-Cola executives are imagining this. One Coca-Cola exec. said: "Our vision is to create a paper bottle that can be recycled like any other type of paper. A paper bottle opens up a whole new world of packaging possibilities. We are convinced that paper packaging has a role to play in the future."

- 26) 2 points: What does plastic mean for the world?
- a) a serious issue
  - b) a legal challenge
  - c) an ambitious goal
- 27) 2 points: The problem with plastic is that it takes too long \_\_\_\_ .
- a) to melt
  - b) to decompose
  - c) to vanish
- 28) 2 points: One Coca-Cola executive claimed that Coca-Cola \_\_\_\_ that paper packaging has a role to play in the future.
- a) disbelieves
  - b) assumes
  - c) is persuaded
  - d) to vanish
- 29) 2 points: Coca-Cola plans to use paper bottles in the future for \_\_\_\_ reasons.
- a) social
  - b) economical
  - c) ecological
- 30) 2 points: The article says that, in 2019, Coca-Cola \_\_\_\_ the number one plastic polluter.
- a) won the prize for being
  - b) was considered to be
  - c) was criticised for being

### **Key**

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(1 point) 11 b, 12 b, 13 c, 14 a, 15 c, 16 c, 17 a, 18 b, 19 b, 20 a, 21 c, 22 c, 23 c, 24 a, 25 a,  
(2 points) 26 a, 27 b, 28 b, 29 c, 30 b.



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