Entrance examination

Academic Year 2024/2025

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 $\dfrac{a^4 \, b^3 \, c}{a^4 \, b \, c^{-1}}$

    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 $f(x) = \dfrac{10}{\sqrt{x-|x|}}$

    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

(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

(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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