

MARINHA DO BRASIL
SERVIÇO DE SELEÇÃO DO PESSOAL DA MARINHA

CONCURSO PÚBLICO DE ADMISSÃO À ESCOLA NAVAL
CPAEN/2023

NÃO ESTÁ AUTORIZADA A UTILIZAÇÃO DE
MATERIAL EXTRA

1º Dia – Prova de Matemática e Inglês

QUESTÃO 1

Dois aspirantes A e B correm em uma pequena pista circular, e os tempos em cada volta completa são registrados em segundos (s). O aspirante A completou a 1ª volta em 7s, as duas primeiras voltas em 20s, as três primeiras voltas em 33s, as quatro primeiras voltas em 46s e assim sucessivamente mantendo a regularidade. O aspirante B completou a 1ª volta em 15s, as duas primeiras voltas em 34s, as três primeiras voltas em 53s, as quatro primeiras voltas em 72s e assim sucessivamente mantendo também a regularidade. Considere que os aspirantes começaram a corrida no mesmo instante e no mesmo ponto de partida. Calcule em quantos segundos, após a partida, os aspirantes se encontrarão pela 4ª vez no ponto de partida.

- (A) 779
- (B) 798
- (C) 805
- (D) 806
- (E) 813

QUESTÃO 2

Um cilindro circular reto de raio r e altura h possui volume igual a 300 cm^3 . Sabendo que o cilindro possui menor área total possível, a altura h , em cm, é aproximadamente igual a:

- (A) 7,25
- (B) 6,90
- (C) 6,15
- (D) 3,63
- (E) 2,00

QUESTÃO 3

Considere um triângulo T_1 de área w . Os comprimentos das medianas de T_1 são os comprimentos dos lados de um novo triângulo T_2 , os comprimentos das medianas de T_2 são os comprimentos dos lados de um novo triângulo T_3 e assim sucessivamente, ou seja, a construção dos lados triângulo T_{n+1} é realizada a partir dos comprimentos das medianas do triângulo T_n . Sendo assim, se $w = 3$, é correto afirmar que a soma de todas as áreas dos T_n , com $n \rightarrow \infty$, é um:

- (A) número racional não inteiro.
- (B) quadrado perfeito.
- (C) número primo.
- (D) número irracional.
- (E) número par.

QUESTÃO 4

Uma hipérbole tem os eixos transverso e conjugado contidos nos eixos coordenados e contém os pontos médios dos lados do quadrilátero, cujos vértices são as intersecções da elipse, de equação $9x^2 + y^2 = 36$, com os eixos coordenados. Sabendo que as coordenadas de um dos focos da hipérbole é $\left(\frac{\sqrt{13}}{2}, 0\right)$, assinale a opção que apresenta uma das equações das assíntotas dessa hipérbole.

- (A) $y = \sqrt{3}x$
- (B) $y = -\sqrt{13}x$
- (C) $y = -2\sqrt{3}x$
- (D) $y = 13x$
- (E) $y = 3x$

QUESTÃO 5

Considere que um jogador do jogo eletrônico *Call of Duty Warzone*, sabedor de matemática, foi questionado por seus amigos sobre quantas unidades de área da região do campo de batalha devem ser vasculhadas para encontrar os últimos inimigos a serem derrubados para que, assim, eles vençam a partida. O jogador respondeu: supondo que a região do campo de batalha que todos estejam ocupando seja totalmente plana, o valor da área que deve ser vasculhada é igual ao valor da área do polígono convexo cujos vértices são os pares cartesianos da solução do sistema $\begin{cases} x^2 = 13x + 4y \\ y^2 = 4x + 13y \end{cases}$. Desse modo, assinale a opção que apresenta o valor da área dessa região dita pelo jogador.

- (A) 255
- (B) 260
- (C) 265
- (D) 270
- (E) 275

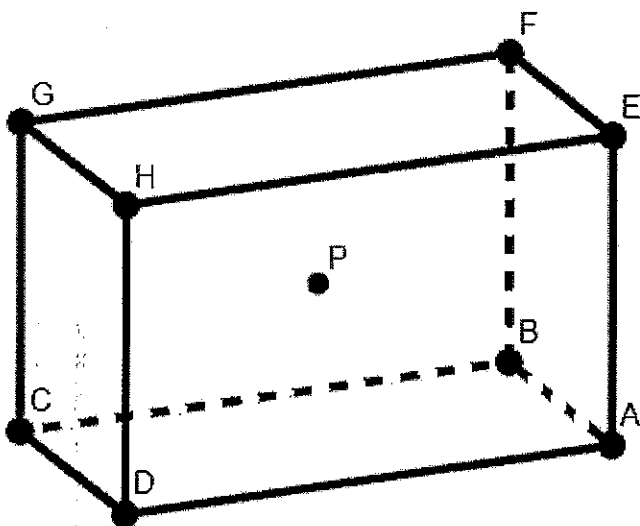
QUESTÃO 6

Sejam i a unidade imaginária e o complexo Z que satisfaz a igualdade $4|Z| = |Z-1-2i|$. A soma dos números reais Z que satisfazem a igualdade é igual a:

- (A) -2
- (B) -1
- (C) -2/15
- (D) -1/45
- (E) -1/5

QUESTÃO 7

Analise a figura a seguir.



Seja o paralelepípedo reto retângulo ABCDEFGH com medidas $AB = 4\text{cm}$, $AD = 8\text{cm}$ e $AE = 5\text{cm}$, conforme a figura acima. Considerando o ponto P como o centro do paralelepípedo, é correto afirmar que a distância, em cm, de P ao plano BDE é igual a:

- (A) $\frac{10}{\sqrt{189}}$
- (B) $\frac{20}{\sqrt{189}}$
- (C) $\frac{35}{2\sqrt{105}}$
- (D) $\frac{30}{\sqrt{189}}$
- (E) $\frac{35}{\sqrt{105}}$

QUESTÃO 8

Seja f uma função polinomial, na variável x , de menor grau possível e coeficientes reais, tal que $f(1) = 2$, $f(4) = 3$, $f(3) = 4$ e $f(2) = 1$. Assim, é correto afirmar que f :

- (A) possui ponto de inflexão em $x = \frac{5}{2}$
- (B) possui um ponto de máximo absoluto em $x = 3$
- (C) possui um ponto de mínimo absoluto em $x = 1$
- (D) não é contínua em $x = 1$
- (E) não possui máximo absoluto em $x \in [2, \infty)$

QUESTÃO 9

Na Escola Naval, um oficial afirmou que: "Se todos os navios estão fundeados, então hoje é dia de licença pagamento ou os nautas não estão de serviço".

Assinale a opção que apresenta a afirmativa que equivale à afirmação do oficial.

- (A) Se todos os navios não estão fundeados, então hoje não é dia de licença pagamento ou os nautas estão de serviço.
- (B) Se hoje não é dia de licença pagamento e os nautas estão de serviço, então há navio que não está fundeado.
- (C) Se hoje é dia de licença pagamento ou os nautas não estão de serviço, então todos os navios estão fundeados.
- (D) Se hoje não é dia de licença pagamento ou os nautas estão de serviço, então há navio que não está fundeado.
- (E) Se hoje é dia de licença pagamento e os nautas estão de serviço, então há navio que não está fundeado.

QUESTÃO 10

Seja a reta r oblíqua a um plano φ pelo ponto A . Considere que a reta $s \subset \varphi$ é a projeção ortogonal de r sobre φ e a reta $t \subset \varphi$ que passa por A . Se θ é o ângulo entre r e s , β é o ângulo entre r e t , assinale a opção que apresenta a correta relação entre esses ângulos.

- (A) $\theta < \beta$
- (B) $\theta = \beta$
- (C) $\beta < \theta$
- (D) $\theta = 2\beta$
- (E) $2\beta < \theta$

QUESTÃO 11

A camisa de um grande clube de futebol carioca e mundial é formada por sete listras verticais (frente da camisa) das cores preta e branca, conforme a figura 1.

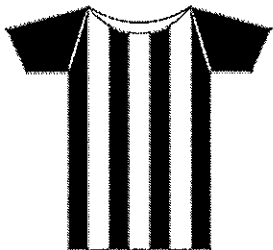


Figura 1

A empresa que confecciona a camisa oferece modelos com diferentes maneiras de disposição das cores das listras, e o clube exige que sempre exista a cor preta entre brancas e/ou a cor branca entre pretas, conforme apresentado na figura 1 (camisa original) e nas figuras 2, 3 e 4 abaixo.



Figura 2

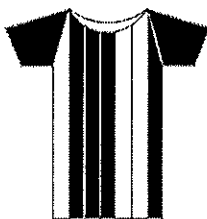


Figura 3

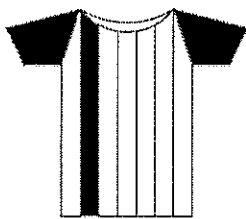


Figura 4

Considerando apenas a frente da camisa e cumprindo a exigência do clube, quantos modelos de camisa podem ser confeccionados pela empresa?

- (A) 126
- (B) 122
- (C) 114
- (D) 112
- (E) 64

QUESTÃO 12

Considere que um navio de guerra da Marinha do Brasil danificou o radar de um navio inimigo com um tiro de canhão 50mm. O radar do navio inimigo passou a detectar apenas numa região angular que é solução de $\sin(x) + \cos(x) \geq \frac{\sqrt{2}}{2}$, sendo x real. Se o radar do navio inimigo tem um poder de alcance que está dentro da região da circunferência $x^2 + y^2 = R^2$, com $R \leq 100\text{km}$, assinale a opção que apresenta a área total de alcance desse radar em que não será possível detectar o navio de guerra da Marinha do Brasil.

- (A) $\frac{\pi}{3} R^2 \text{km}^2$
- (B) $\frac{\pi}{12} R^2 \text{km}^2$
- (C) $\frac{2\pi}{3} R^2 \text{km}^2$
- (D) $\frac{3\pi}{4} R^2 \text{km}^2$
- (E) $\frac{5\pi}{6} R^2 \text{km}^2$

QUESTÃO 13

Considere que parte real e imaginária de um número complexo z sejam denotadas, respectivamente, por $\text{Re}(z)$ e $\text{Im}(z)$. Sejam z , z_1 e z_2 números complexos em que z_1 e z_2 satisfazem a equação $z^2 + (1 - i)z - 3i = 0$, onde i é a unidade imaginária. Sobre z_1 e z_2 , é correto afirmar que:

- (A) $\text{Im}(z_1 + z_2) = 0$
- (B) $\text{Re}(z_1 + z_2) = 0$
- (C) $\text{Im}(z_1) \cdot \text{Im}(z_2)$ é um número irracional.
- (D) $\text{Re}(z_1) \cdot \text{Re}(z_2)$ é um número irracional.
- (E) $\text{Im}(z_1 + z_2) + \text{Re}(z_1 + z_2) = 0$

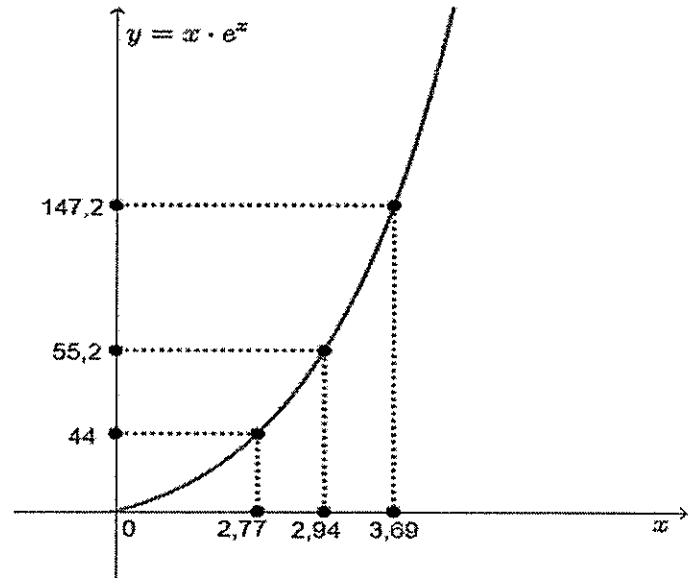
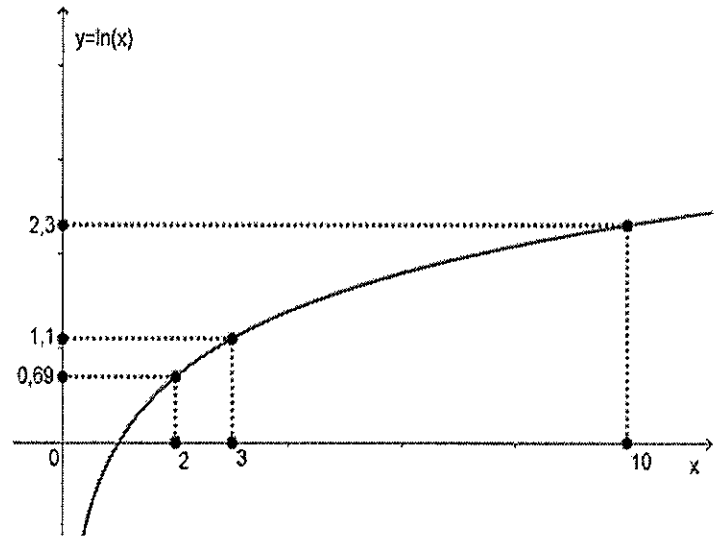
QUESTÃO 14

Se $x > 0$, seja $f(x) = 5x^2 + Ax^{-5}$, em que A é uma constante positiva. Assinale a opção que apresenta o menor valor de A tal que $f(x) \geq 24, \forall x > 0$.

- (A) $\frac{2^{11} \cdot 3^3}{7^3} \cdot \sqrt{6}$
- (B) $\frac{2^3 \cdot 3^{11}}{7^{11}} \cdot \sqrt{6}$
- (C) 2^8
- (D) $\frac{2^7 \cdot 3^{11}}{7^{11}} \cdot \sqrt{3}$
- (E) $\frac{2^8 \cdot 3^{-7}}{7^{-3}} \cdot \sqrt{3}$

QUESTÃO 15

Analise os gráficos a seguir.



Seja um número real positivo x , tal que $\frac{40}{x} = 4^x$, e utilizando os dados dos gráficos, apresentados acima, das funções definidas por $y = x \cdot e^x$ e $y = \ln(x)$, é correto afirmar que o valor de x é aproximadamente igual a:

- (A) 1,60
- (B) 1,96
- (C) 2,13
- (D) 2,24
- (E) 2,52

QUESTÃO 16

Um jogador, cansado de ganhar pouco dinheiro em jogos *on-line*, resolveu investir seus 20 mil reais aplicando em até 4 investimentos distintos possíveis: Poupança, Mercado de Ações, Títulos do Tesouro Nacional e Mercado Imobiliário. Considere que cada aplicação deve ser realizada em unidades de mil reais. Assim, assinale a opção que apresenta a quantidade de maneiras distintas de distribuir os 20 mil reais entre os investimentos.

- (A) 1771
- (B) 4772
- (C) 10626
- (D) 13781
- (E) 15852

QUESTÃO 17

O valor da soma $\sum_{k=1}^{2023} \text{tg}(k) \cdot \text{tg}(k + 1)$ é igual a:

- (A) $\frac{\text{tg}(2023)}{\text{tg}(1)} + 2023$
- (B) $\frac{\text{tg}(2023)}{\text{tg}(1)} - 2023$
- (C) $\frac{\text{tg}(2024)}{\text{tg}(1)} + 2024$
- (D) $\frac{\text{tg}(2024)}{\text{tg}(1)} - 2024$
- (E) $\text{tg}(2023) - \text{tg}(2024)$

QUESTÃO 18

Sejam as matrizes A e B, ambas de ordem 4x4, com $\det A = -1$ e $\det B = 2$. Calcule o determinante da matriz X sabendo que $A^{-1} \cdot B^T \cdot X = 2A^T$ e assinale a opção correta.

- (A) -8
- (B) 8
- (C) -16
- (D) 16
- (E) 32

QUESTÃO 19

Na partida de futebol entre Alemanha e Japão na Copa do Mundo de 2022, no lance que originou o segundo gol do Japão, por 1,88mm, a bola não passou totalmente pela linha de fundo (linha branca), como mostram as figuras 1, 2 e 3 apresentadas abaixo.

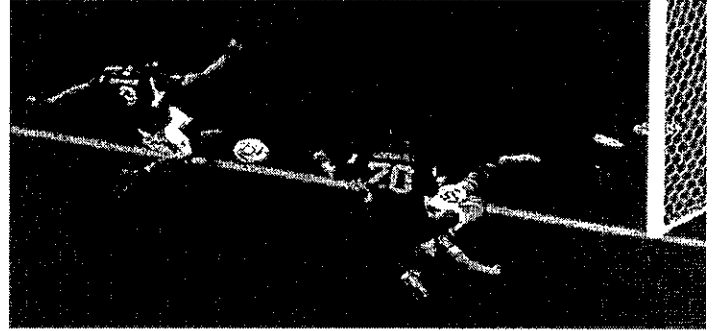


Figura 1

(Fonte: www.mirror.co.uk/sport/football/news/fifa-statement-japan-goal-germany-28641190)

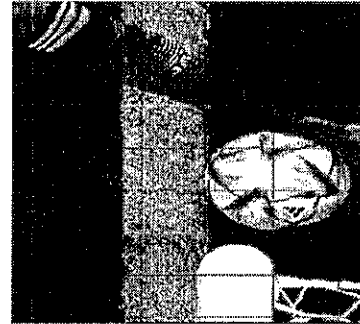


Figura 2

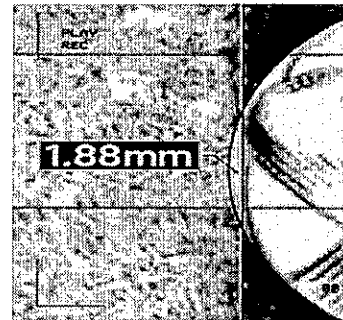


Figura 3

(Fonte: www.facebook.com/SuperLigInternationalOriginal/photos/a.1384593458432250/3447555148802727)

Sabe-se que a parte da bola sobre a linha branca equivale a uma calota esférica de altura 1,88mm e volume V_C . Considerando a bola de futebol uma esfera de raio 70cm e volume V , assinale a opção que apresenta corretamente a relação entre V e V_C .

- (A) $0,1\% \text{ de } V < V_C < 1\% \text{ de } V$
- (B) $0,01\% \text{ de } V < V_C < 0,1\% \text{ de } V$
- (C) $0,001\% \text{ de } V < V_C < 0,01\% \text{ de } V$
- (D) $0,0001\% \text{ de } V < V_C < 0,001\% \text{ de } V$
- (E) $V_C < 0,0001\%$

QUESTÃO 20

Assinale a opção que apresenta o resultado de

$$\lim_{x \rightarrow +\infty} \left(\frac{3x+9}{4x+1} \right)^{4x+4}$$

- (A) $+\infty$
- (B) $-\infty$
- (C) e^{-1}
- (D) $e^{-\frac{3}{4}}$
- (E) 0

QUESTÃO 21

Seja F uma função definida por $F(x) = \int_0^x f(t)dt$, $x \geq 0$, onde $f(t) = \begin{cases} t, & 0 \leq t < 1 \\ t^2 - 1, & t \geq 1. \end{cases}$ Assinale a opção que apresenta o valor de $F(3)$

- (A) $\frac{9}{2}$
- (B) $\frac{43}{6}$
- (C) 3
- (D) -9
- (E) $\frac{13}{3}$

QUESTÃO 22

Sabendo que o valor de $\log_6 30 = a$ e $\log_{15} 24 = b$, assinale a opção que apresenta o valor de $\log_{12} 60$ em função de a e b .

- (A) $\frac{ab+b-1}{ab-a+1}$
- (B) $\frac{2ab+2a-1}{ab+b+1}$
- (C) $\frac{b+3-ab}{ab-1}$
- (D) $\frac{2a-b-2-ab}{ab-1}$
- (E) $\frac{1+a+b}{2+a}$

TEXT I

Read the text below and answer questions 23 to 26.

Robo-penguin: how artificial birds are relaying the secrets of ocean currents

[1] If it looks like a penguin and swims like a penguin - but it's actually a robot - then it must be the latest advance in marine sensory equipment.

[2] The Quadroin is an autonomous underwater vehicle (AUV): a 3D-printed self-propelled machine designed to mimic a penguin in order to measure the properties of oceanic eddies.

[3] It was developed by Burkard Baschek while head of Germany's Institute of Coastal Ocean Dynamics at the Helmholtz Centre Hereon after he watched more than \$20,000 of his equipment sink to the bottom of the Pacific Ocean.

[4] Eddies are small ocean currents that other research methods have struggled to capture. They influence all the animals and plants in the seas as well as the Earth's climate, driving roughly 50% of all phytoplankton production. The base of the marine food chain, phytoplankton and other marine plants such as kelp and algal plankton also produce up to 70% of atmospheric oxygen.

[5] Despite their significance, eddies are poorly understood within the scientific community because they are small; some are just 10 metres across, and they have an average lifespan of 12 hours, posing a huge challenge for ocean observations. Few detailed measurements even exist.

[6] Baschek first developed a device with about 20 sensors attached to a rope, to be towed behind a ship to measure key oceanographic variables in the eddies - such as temperature, salinity, pressure, chlorophyll and oxygen. But the rope would catch on rocks, fishing nets or containers - sending all the data to the seabed.

[7] "The only way to avoid such underwater dangers was to develop a device which can do these measurements without being tied to a rope," says Baschek.

[8] The solution came from Rudolf Bannasch and his team at the Berlin-based company EvoLogics, which specialises in bionics based on natural evolution. Bannasch knew exactly what Baschek needed: a penguin.

[9] "Penguins provide a shape with optimal aerodynamic characteristics," says Bannasch. His studies in wireless underwater navigation and communication systems suggest that penguins are 20% to 30% more aerodynamic than anything designed in a laboratory, ideal for the high-speed measurements Baschek sought.

[10] In April, the first Quadroin prototype - the name derives from "quadro", after the four propellers that move the AUV, and "penguin" - had its maiden voyage in a lake near Berlin. It has a maximum speed of eight knots (9.2 mph) and uses the same sensors that used to be towed on a rope. The Quadroin, however, can float freely through the water, avoiding obstructions, to depths of 150 metres.

[11] One element in the study of eddies that has worried scientists is that they need to be measured in multiple

locations simultaneously. Bannasch and his colleagues are working to create two more artificial penguins that would swim in unison and communicate with each other.

[12] "We developed the first singing underwater modems so that the Quadroins will be able to send and receive chirping signals similar to those of dolphins," says Bannasch.

[13] As for losing them to the bottom of the ocean, the artificial penguins have a final trick that also mimics their real-life counterparts: if the electronics fail and the sensors go dark, they float.

(Adapted from: <https://www.theguardian.com>)

QUESTÃO 23

The word "such" in the sentence "The only way to avoid such underwater dangers (...)" (paragraph 7) refers to:

- (A) measuring key oceanographic variables in the eddies.
- (B) temperature, salinity, pressure, chlorophyll and oxygen.
- (C) the rope being caught on rocks, fishing nets or containers.
- (D) the effect of eddies on sensors.
- (E) the effect of eddies on ships.

QUESTÃO 24

Bannasch knew that Baschek needed a penguin because:

- (A) Baschek was having difficulty in finding the right animals for his research.
- (B) Baschek needed to make high-speed measurements.
- (C) Baschek needed to find animals that could travel at a high speed.
- (D) Bannasch had some experience in creating wireless underwater creatures.
- (E) Bannasch discovered that penguins can untie a rope.

QUESTÃO 25

The text describes eddies as currents that:

- (A) can be easily measured.
- (B) have large sizes.
- (C) can be easily observed.
- (D) generally last longer than one day.
- (E) usually last less than one day.

QUESTÃO 26

According to the text:

- (A) it has always been easy to study eddies.
- (B) it has always been difficult to study eddies.
- (C) penguins have traditionally been used in the study of oceanic eddies.
- (D) penguins have the capacity of measuring oceanic eddies.
- (E) researchers have lost much equipment to the bottom of the ocean while they watched penguins.

TEXT II

Read the text below and answer questions 27 and 28.

Welcome to the 'plastisphere': the synthetic ecosystem evolving at sea

[1] Plastic bottles dominate waste in the ocean, with an estimated 1m of them reaching the sea every minute. The biggest culprit is polyethylene terephthalate (Pet) bottles.

[2] Last month, a study found two bacteria capable of breaking down Pet - or, as the headlines put it, "eating plastic". Known as *Thioclava* sp. BHET1 and *Bacillus* sp. BHET2, the bacteria were isolated in a laboratory - but they were discovered in the ocean.

[3] The bacteria are the latest example of new organisms that appear to be growing in a unique environment: the vast amounts of plastic at sea.

[4] Like the atmosphere, magnetosphere and hydrosphere, the plastisphere is a region. But it is also an ecosystem, like the Siberian steppe or coral reefs - a plasticised marine environment. The best-known concentration of seaborne plastic waste is the Great Pacific garbage patch, a sort of plastic soup spread over an area roughly twice the size of France, but plastic is everywhere.

[5] First described in a 2013 study to refer to a collective of plastic-colonising organisms, including bacteria and fungi, the term has since expanded. It now loosely encompasses larger organisms, from crabs to jellyfish, which float across oceans on marine plastics. The term was coined by Linda Amaral-Zettler, a marine microbiologist at the Royal Netherlands Institute for Sea Research.

[6] Although the term may be recent, the phenomenon is not. "The plastisphere has been around for as long as plastic has existed," Amaral-Zettler says.

[7] What is new is our understanding of just how complex an ecosystem the world of plastic can be. In the plastisphere there are organisms that photosynthesise; there are predators and prey; symbionts and parasites, allowing for "a full range of interactions possible, as in other ecosystems", says Amaral-Zettler.

[8] Another unique feature of the plastisphere is that humans invented it. Every other ecosystem has evolved

over millions of years. The meaning of that is not yet clear. Wright believes "it's more an issue of scale" because unlike most naturally occurring materials, plastic is highly durable and persistent, allowing the growth and spread of attached organisms over a massive area.

[9] There are also concerns about plastic-colonising organisms that can travel around the world. Amaral-Zettler's 2013 study discovered *Vibrio*, a type of bacteria known to contain several species of pathogens, including some associated with gastroenteritis.

[10] For the scientists, the plastisphere's presence is a less obvious concern than its potential health dangers. Most plastic ends up in landfill, but nearly a third of it ends up in the sea. The majority sinks, but a lot does not, becoming a home for all sorts of microbes that might not otherwise have a home.

[11] "At the moment that's still very much an active area of research," Wright says. There are two main fields of investigation: potential pathogens in the plastisphere, and the potential for some microbes to biodegrade hydrocarbons, such as the plastic-eaters identified last month.

[12] Those are not unique to the ocean. In 2016, scientists in Japan discovered *Ideonella sakaiensis*, a species of bacteria at a rubbish tip that had evolved an enzyme that enabled it to eat plastic.

[13] But another study in the same year found that, compared with bacteria in the surrounding waters, those in the plastisphere possessed an enriched collection of genes, suggesting that they had adapted for a "surface-attached lifestyle".

[14] Could the plastisphere evolve in such a way that bacteria would essentially eat it, or at least help us identify ways to break down our plastic waste? "I'd definitely agree that [microbes on] plastics are going to be the key place to look in the fight against plastic," says Wright.

(Adapted from: <https://www.theguardian.com>)

QUESTÃO 27

Decide if the statements below are true (T) or false (F) according to the text. Then, choose the option that contains the right sequence.

- () The plastisphere is one more ecosystem in our world and it is similar to all other ecosystems that exist.
- () The atmosphere, the magnetosphere and the hydrosphere gave origin to the plastisphere.
- () In addition to bacteria and fungi, some animals can travel to many countries on marine plastics.
- () The bacteria in the plastisphere can be characterized as a group of bacteria that have not become adapted to living on the surface.
- () Wright believes that we can combat plastic pollution if we do research on microbes that eat or decompose plastic waste.

- (A) (T) (F) (T) (T) (F)
- (B) (F) (T) (F) (T) (T)
- (C) (T) (T) (T) (F) (F)
- (D) (F) (F) (T) (F) (T)
- (E) (F) (F) (F) (T) (T)

QUESTÃO 28

In the sentence "For the scientists, the plastisphere's presence is a less obvious concern than its potential health dangers." (paragraph 10), the meaning of the word "concern" is:

- (A) characteristic.
- (B) advantage.
- (C) worry.
- (D) easiness.
- (E) secret.

QUESTÃO 29

Read the sentence below.

The Government has clarified that there is no obligation for event operators to cancel or postpone shows and sporting events during the national mourning period, including the day of the state funeral.

(<https://accessaa.co.uk>)

Which option replaces the underlined verb correctly, without changing the meaning of the sentence?

- (A) give up
- (B) turn on
- (C) run away
- (D) put off
- (E) carry out

QUESTÃO 30

Which option is grammatically INCORRECT?

- (A) Remember to lock the door when you leave.
- (B) Try taking an aspirin if you have a headache.
- (C) My aunt makes her children to wake up early.
- (D) The joke was so funny that I couldn't stop laughing.
- (E) He'll never forget visiting New York for the first time.

QUESTÃO 31

Which option expresses deduction?

- (A) They can swim, but they can't play soccer well.
- (B) You may come in if you wish. I need to talk to you.
- (C) Could you speak English when you were a child?
- (D) Would you mind leaving us alone for a minute?
- (E) She has been driving all day. She must be tired.

QUESTÃO 32

Choose the option that is grammatically correct.

- (A) They met in Paris, aren't they?
- (B) You made the birthday cake yourself, weren't you?
- (C) We are both late, don't we?
- (D) The match will start in ten minutes, won't it?
- (E) Our guests haven't arrived yet, have we?

QUESTÃO 33

Mark the option that completes the dialogue below correctly.

John: Peter, don't close the door.

Peter: What did you say?

John: I _____ the door.

- (A) told you not to close
- (B) told to not close
- (C) say you had not closed
- (D) told you didn't close
- (E) said that you to not close

QUESTÃO 34

Look at the chart below.

Electric car	Weight
BMW iX xDrive 50	2585 kg
GMC Hummer EV Pickup	4200 kg
Mercedes-Benz EQS 580	2585 kg
Renault Twizy Urban 45	446 kg
Rolls-Royce Spectre	2975 kg

(Adapted from: <https://www.myevreview.com>)

According to the chart, it is correct to say that:

- (A) the Renault Twizy Urban 45 is the heaviest of them.
- (B) the GMC Hummer EV Pickup is the least heavy of them.
- (C) the BMW iX xDrive 50 is as heavy as the Rolls-Royce Spectre.
- (D) the Rolls-Royce Spectre is heavier than the Mercedes-Benz EQS 580.
- (E) the BMW iX xDrive 50 is less heavy than the Renault Twizy Urban 45.

QUESTÃO 35

Complete the gaps in the dialogue with a, an or the. Then, choose the option with the correct sequence. A dash (-) indicates that no article is used.

Tom is selling his sail boat. He advertised it and Jim phoned him to ask for information.

JIM: Hello! I've read your advertisement about _____ sail boat.

TOM: Hi!

JIM: How long have you had it for?

TOM: I've had it for three years. It's not _____ old sail boat. It's in _____ great condition! And it has _____ lot of equipment installed.

JIM: Why do you want to sell it?

TOM: Well, this is _____ first sail boat I've had in my life and now I need _____ different one. It's quite fast but it's not _____ fastest sail boat in _____ world.

JIM: Oh, I see. Where did you buy it?

TOM: I bought it at _____ *Boats For All*. Would you like to make _____ appointment to see it?

JIM: Sure!

- (A) - / an / a / - / a / a / the / - / the / an
- (B) the / the / - / a / a / - / a / the / an / an
- (C) a / an / - / a / the / a / the / the / - / an
- (D) a / a / a / - / the / - / a / the / - / a
- (E) the / an / a / - / the / a / a / the / an / a

QUESTÃO 36

Which option completes the text correctly?

Lord Canterville: Mr. Otis, the law of _____ country states that _____ jewels belong to _____ family. Take _____ are _____.

(Adapted from: WILDE, Oscar. **The Canterville Ghost**: The graphic novel. Boston: Heinle, 2011. p.113)

- (A) that / those / your / it / Its / your
- (B) this / those / yours / it / Its / your
- (C) this / these / your / them / They / yours
- (D) these / these / your / their / They / yours
- (E) these / this / yours / them / They / your

QUESTÃO 37

Choose the option that is grammatically correct.

- (A) The design of ships are called marine engineering.
- (B) A ship may been designed to carry cargo, plus any necessary supplies as fuel, lubricating oil, crew, and the crew's life support.
- (C) A ship can being designed to survive moderate damage.
- (D) Most cruise ships now in service was builded after 1970 specifically for the cruise trade.
- (E) In the past, maritime nations began to realize that accidents at sea were preventable.

QUESTÃO 38

Which option is grammatically correct?

- (A) If I were you, I'd buy a new car.
- (B) I'd bought a new car if I'd be you.
- (C) If I'm you, I bought a new car.
- (D) If I was you, I'd bought a new car.
- (E) I'll buy a new car if I had been you.

QUESTÃO 39

Which option completes the paragraph below correctly?

Everyone _____ in a good mood when they _____ their drive to Canterville Chase. It _____ a beautiful July evening, and they _____ the pine trees as they _____.

(Adapted from: WILDE, Oscar. **The Canterville Ghost**: The graphic novel. Boston: Heinle, 2011. p.15)

- (A) were / had begun / was / can smell / driven
- (B) was / began / was / could smell / drove
- (C) were / begun / had been / could smell / drove
- (D) was / had begun / had been / can smell / driven
- (E) were / began / was / could smell / drive

QUESTÃO 40

Mark the option that completes the question below correctly.

_____ different kinds of trees grow in the Amazon?

In 2013, Field Museum ecologist Nigel Pitman and fellow scientists estimated that there are 16,000 different trees growing in the Amazon. But confirming that guess meant actually counting all of the known species.

(Adapted from: <https://www.fieldmuseum.org/blog>)

- (A) How long
- (B) When
- (C) How much
- (D) Where
- (E) How many

