

MARINHA DO BRASIL
DIRETORIA DE ENSINO DA MARINHA

*CONCURSO PÚBLICO DE ADMISSÃO À ESCOLA NAVAL
CPAEN/2021*

**NÃO ESTÁ AUTORIZADA A UTILIZAÇÃO DE
MATERIAL EXTRA**

1º Dia – Prova de Matemática e Inglês

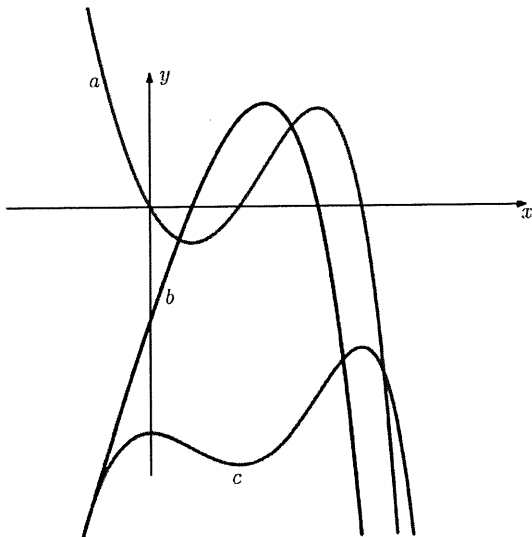
QUESTÃO 1

Um fabricante de bolas de tênis (bolas em formatos esféricos) deseja vender as bolas em embalagens cilíndricas (cilindros circulares retos) de raio R e altura H , cada uma. Em cada embalagem há n bolas de tênis de raio R , cada bola. O fabricante deseja que a área total das superfícies das bolas seja igual à área lateral da embalagem (cilindro). Dessa forma, é correto afirmar que:

- (A) $R = \frac{H}{n}$.
- (B) $R = \frac{H}{2n}$.
- (C) $R = \frac{H}{3n}$.
- (D) $R = \frac{2H}{3n}$.
- (E) $R = \frac{3H}{4n}$.

QUESTÃO 2

Seja f uma função real e f' e f'' as derivadas de ordem um e dois, respectivamente. A figura abaixo mostra parte dos gráficos de f , f' e f'' , indicados pelas letras a , b e c . Dessa forma, assinale a opção que apresenta uma correspondência correta.



- (A) $a = f$ e $b = f''$
- (B) $c = f''$ e $a = f'$
- (C) $c = f'$ e $b = f$
- (D) $a = f'$ e $b = f''$
- (E) $a = f$ e $c = f'$

QUESTÃO 3

Seja a sequência abaixo definida por uma lei de recorrência de 3ª ordem. Cada termo dessa sequência (do quarto termo em diante) é uma combinação linear dos três termos imediatamente anteriores.

$$(2, -1, 1, 6, 3, -1, \dots)$$

A soma do sétimo termo com o oitavo termo é igual a

- (A) 4.
- (B) 5.
- (C) 15.
- (D) 23.
- (E) 24.

QUESTÃO 4

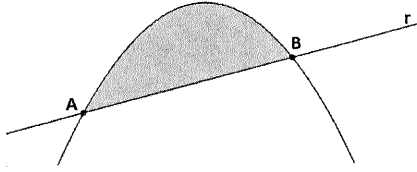
Assinale a opção que apresenta a soma de todas as coordenadas dos pontos da reta $r: x - 1 = 2y = z$ que equidistam dos planos $\pi_1: 2x - 3y - 4z - 3 = 0$ e

$$\pi_2: 4x - 3y - 2z = -3.$$

- (A) 0
- (B) 1
- (C) 2
- (D) 3
- (E) 4

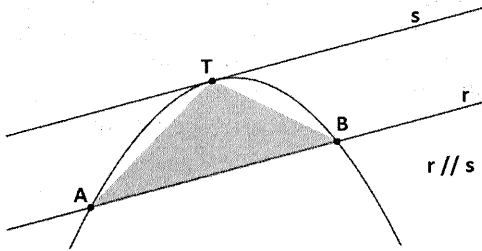
QUESTÃO 5

Um dos mais brilhantes trabalhos do matemático grego Arquimedes (287 a.C. - 212 a.C.) foi a Quadratura da Parábola. Através do Método da Exaustão, Arquimedes demonstrou que a área de um segmento parabólico (região compreendida entre a parábola e uma linha reta r), conforme figura abaixo.



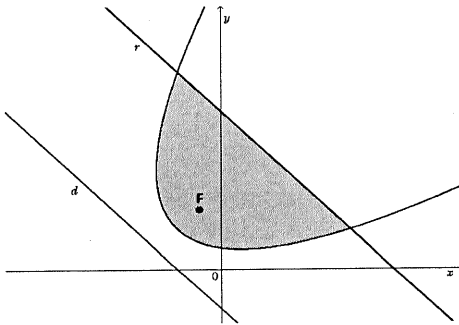
Segmento Parabólico (região hachurada)

Essa área do segmento parabólico equivale a $\frac{4}{3}$ da área do triângulo **ABT** seguinte, inscrito no segmento parabólico, sendo as retas r e s paralelas e T o ponto de tangência.



Seja p uma parábola com foco $F\left(-\frac{\sqrt{2}}{2}; \frac{3\sqrt{2}}{2}\right)$ e reta diretriz $d: x + y + \sqrt{2} = 0$.

A parábola é seccionada pela reta $r: \sqrt{2} \cdot x + \sqrt{2} \cdot y - 8 = 0$, originando a região hachurada da figura abaixo.



Com base nas informações apresentadas, é correto afirmar que a área da região hachurada é igual a

- (A) $\frac{52}{3}$.
- (B) $\frac{64}{3}$.
- (C) 24.
- (D) 30.
- (E) $\frac{128}{3}$.

QUESTÃO 6

Sabendo que $2\text{sen}(\alpha + \beta) = \text{sen}(\alpha) + \text{sen}(\beta)$, com $\alpha + \beta \neq \pi k, k \in \mathbb{Z}$, assinale a opção que apresenta o valor de $\text{tg}\left(\frac{\alpha}{2}\right) \cdot \text{tg}\left(\frac{\beta}{2}\right)$.

- (A) $\frac{1}{3}$
- (B) $\frac{1}{4}$
- (C) $\frac{1}{5}$
- (D) $\frac{1}{6}$
- (E) $\frac{1}{8}$

QUESTÃO 7

Jayme e seu neto João irão disputar uma partida de xadrez (tabuleiro na Figura 1)

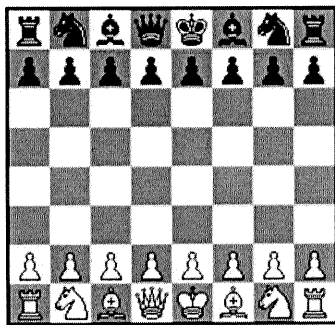


Figura 1

João jogará uma moeda circular, de raio 1 cm, sobre o tabuleiro.

Se a moeda cair inteiramente sobre uma única casa do tabuleiro (exemplos: Figura 2 e Figura 3), João jogará com as peças brancas, caso contrário Jayme jogará com as peças brancas.

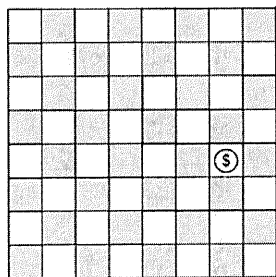


Figura 2

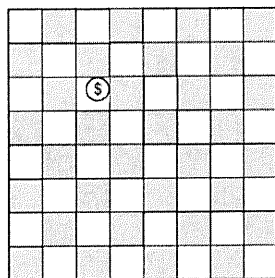


Figura 3

Sabe-se que o tabuleiro é formado por 64 casas (quadradas) de 4 cm de lado, cada, e que a moeda deverá tocar em pelo menos um ponto da região quadriculada (exemplos: Figuras 4 e 5).

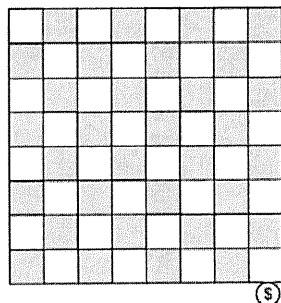


Figura 4

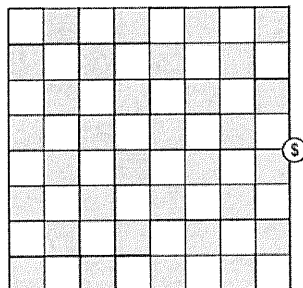


Figura 5

A probabilidade de João jogar com brancas é aproximadamente igual a:

- (A) 0,12.
- (B) 0,22.
- (C) 0,35.
- (D) 0,40.
- (E) 0,47.

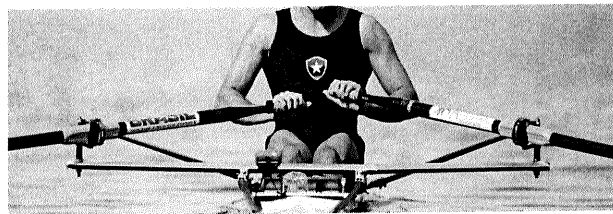
QUESTÃO 8

Suponha que o conjunto solução da equação $5x^3 - 4x^2 + 7x - 2 = 0$ é $\{x_1, x_2, x_3\}$. Se a equação polinomial $P(x) = 0$ apresenta $\{5x_1, 5x_2, 5x_3\}$ como conjunto solução, assinale a opção que apresenta a soma dos coeficientes de $P(x)$.

- (A) $-\frac{18}{25}$
- (B) $-\frac{19}{15}$
- (C) $-\frac{21}{20}$
- (D) $-\frac{17}{35}$
- (E) $-\frac{17}{20}$

QUESTÃO 9

Nos últimos jogos olímpicos (2016), o tradicional clube carioca Botafogo foi a base da equipe de remo da seleção brasileira. O clube possui esse nome em virtude do bairro onde ele nasceu.



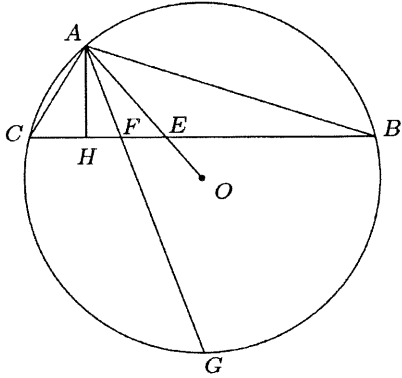
Fonte: www.botafogo.com.br

TFOGOBOA, por exemplo, é um anagrama de Botafogo cujas letras não aparecem nas posições de origem. Sendo assim, é correto afirmar que o total de anagramas de BOTAFOGO cujas letras não aparecem nas posições de origem é igual a:

- (A) 21897.
- (B) 7279.
- (C) 1200.
- (D) 780.
- (E) 672.

QUESTÃO 10

Considere um círculo de centro O circunscrito a um triângulo ABC com ângulo obtuso em A . O raio AO forma um ângulo de 30° com a altura AH e intercepta BC em um ponto E . O prolongamento da bissetriz do ângulo A intercepta BC em um ponto F e a circunferência em um ponto G , conforme figura abaixo.



Assinale a opção que apresenta a área do quadrilátero $FEOG$ sabendo que $AG = 4\sqrt{2} \text{ cm}$ e $AH = \sqrt{2\sqrt{3}} \text{ cm}$.

- (A) $6(3 + \sqrt{2}) \text{ cm}^2$
- (B) $3(6 - \sqrt{3}) \text{ cm}^2$
- (C) $2(3 + \sqrt{6}) \text{ cm}^2$
- (D) $3(6 + \sqrt{3}) \text{ cm}^2$
- (E) $6(2 - \sqrt{3}) \text{ cm}^2$

QUESTÃO 11

Um corredor pretende tornar mais regular o tempo gasto para percorrer uma determinada distância. Ele anotou os tempos, em minutos, de cada vez que ele percorreu essa distância (tabela abaixo).

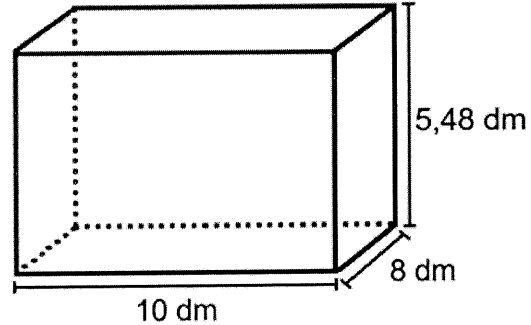
Tempo	3	5	8	3	9	6	5	5
min								

Percebendo a média x dos tempos observados, o corredor pretende realizar o percurso mais n vezes com o tempo exatamente igual à média, cada vez, para que o desvio padrão, de todos os tempos observados, diminua 1 unidade. Dessa forma, n deve ser igual a:

- (A) 16.
- (B) 20.
- (C) 24.
- (D) 28.
- (E) 32.

QUESTÃO 12

Em um teste de prova num laboratório de engenharia civil, cilindros, circulares retos, de concreto de altura 3 dm e raio 1 dm, cada um, serão depositados em um recipiente no formato de um paralelepípedo reto-retângulo de dimensões 10 dm x 8 dm x 5,48 dm, conforme figura abaixo.



Após a maior quantidade possível de cilindros ser colocada no recipiente, este será preenchido com água em sua totalidade. Sendo assim, a opção que mais se aproxima do volume de água, em litros, colocado no recipiente é:

- (A) 59.
- (B) 68.
- (C) 99.
- (D) 115.
- (E) 153.

QUESTÃO 13

Considere um triângulo ABC de modo que C esteja na origem do sistema cartesiano, A esteja no eixo das abscissas com coordenada $(x, 0)$, com $x > 0$, B esteja no primeiro quadrante e θ seja a medida do ângulo $A\hat{C}B$. Considere também que os comprimentos dos segmentos CB e AB sejam, respectivamente, 3 cm e 5 cm , e que θ varie a uma taxa constante de $\frac{1}{2}\text{ rad/s}$. Desse modo, assinale a opção que apresenta a velocidade do ponto A quando $\theta = \frac{\pi}{2}\text{ rad}$.

- (A) $-\frac{1}{2}\text{ cm/s}$
 (B) $\frac{3}{4}\text{ cm/s}$
 (C) $\frac{1}{2}\text{ cm/s}$
 (D) $-\frac{3}{2}\text{ cm/s}$
 (E) $-\frac{4}{3}\text{ cm/s}$

QUESTÃO 14

Considere o sistema abaixo:

$$\begin{cases} y^2 + u^2 + v^2 + w^2 = 4x - 1 \\ x^2 + u^2 + v^2 + w^2 = 4y - 1 \\ x^2 + y^2 + v^2 + w^2 = 4u - 1 \\ x^2 + y^2 + u^2 + w^2 = 4v - 1 \\ x^2 + y^2 + u^2 + v^2 = 4w - 1 \end{cases}$$

Se $x = a, y = b, u = c, v = d$ e $w = e$ constituem a solução do sistema, assinale a opção que apresenta a soma $a + b + c + d + e$.

- (A) $\frac{5}{2}$
 (B) $\frac{2}{7}$
 (C) $\frac{1}{7}$
 (D) $\frac{1}{4}$
 (E) $\frac{2}{3}$

QUESTÃO 15

Assinale a opção que apresenta o valor de $\lim_{x \rightarrow +\infty} \left(\frac{x+1}{x-1}\right)^x$.

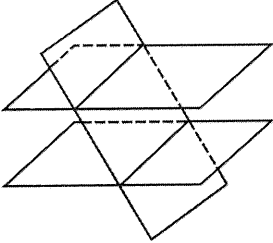
- (A) 1
 (B) e^{-1}
 (C) e
 (D) e^2
 (E) 0

QUESTÃO 16

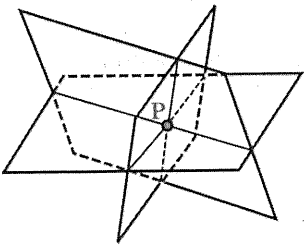
No \mathbb{R}^3 , a equação $ax + by + cz + d = 0$, com as constantes $a, b, c, d \in \mathbb{R}$, podem representar um plano. Assinale a opção que esboça a representação geométrica dos planos no sistema linear abaixo

$$\begin{cases} 2x - y + 3z - 5 = 0 \\ -5x + 3y - 4z + 6 = 0 \\ -x + y + 2z - 4 = 0 \end{cases}$$

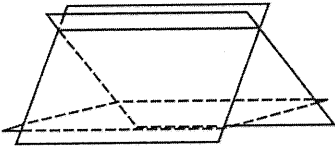
- (A) Dois planos distintos paralelos e um secante a eles.



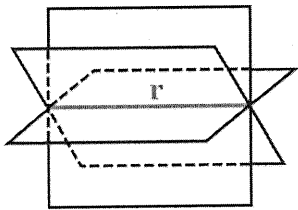
- (B) Planos concorrentes em um ponto (P).



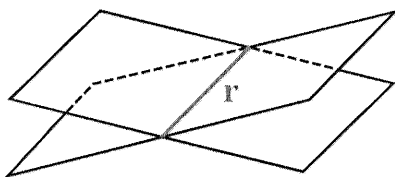
- (C) Planos secantes dois a dois.



- (D) Planos concorrentes em uma reta (r).

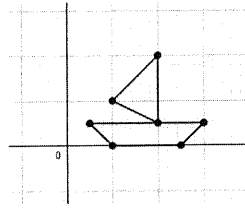


- (E) Dois planos coincidentes e um secante a eles.



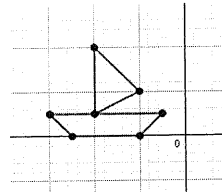
QUESTÃO 17

Todos os pontos $P(a, b)$ da figura abaixo podem ser representados sob a forma matricial $P = \begin{pmatrix} a \\ b \end{pmatrix}$.

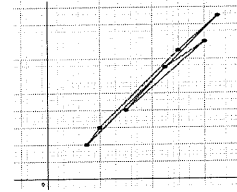


Ao aplicarmos uma transformação linear $A \cdot P = Q$, geramos uma nova figura na qual seus pontos são representados sob a forma $Q = \begin{pmatrix} c \\ d \end{pmatrix}$. Sendo $A = \begin{pmatrix} -2 & 1 \\ 3 & -1 \end{pmatrix}$, assinale a opção que representa a figura formada pela transformação $A \cdot P$.

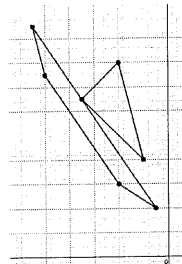
- (A)



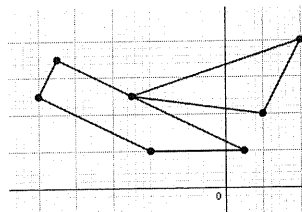
- (B)



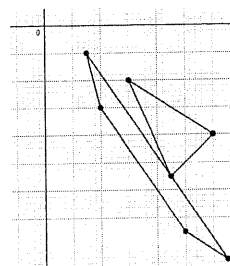
- (C)



- (D)



- (E)



QUESTÃO 18

Seja z um número complexo e i a unidade imaginária. O conjunto dos pontos z do plano complexo que satisfaz a equação $|z - i| = 2|z - 1|$ é uma circunferência. Sobre essa circunferência, assinale a opção correta.

- (A) A maior coordenada do centro é menor que $-\frac{1}{4}$.
- (B) O raio é número inteiro maior que 1.
- (C) A soma das coordenadas do centro é 1.
- (D) O produto das coordenadas do centro é maior que 2.
- (E) O raio é um número racional menor que 1.

QUESTÃO 19

Neste ano de 2021, os sábados de fevereiro e março caíram nos mesmos dias do mês: dia 6, dia 13, dia 20 e dia 27. Sejam X e Y os próximos dois anos em que novamente esse fato ocorrerá, ou seja, que os sábados de fevereiro e março cairão nos dias 6, 13, 20 e 27, é correto afirmar que o valor de $X+Y$ é igual a:

- (A) 4062.
- (B) 4063.
- (C) 4064.
- (D) 4065.
- (E) 4066.

QUESTÃO 20

Seja o plano α de equação $\alpha: \vec{w} = \vec{a} + p \cdot \vec{v} + q \cdot \vec{u}$, $p, q \in R$, com

$\vec{a} = \begin{pmatrix} -1 \\ 1 \\ 1 \end{pmatrix}$, $\vec{v} = \begin{pmatrix} 3 \\ -2 \\ 1 \end{pmatrix}$ e $\vec{u} = \begin{pmatrix} 1 \\ -1 \\ 2 \end{pmatrix}$. O volume do tetraedro

que possui vértices na origem $(0, 0, 0)$ e nas intersecções de α com os eixos coordenados é igual a

- (A) $\frac{1}{3}$.
- (B) $\frac{3}{5}$.
- (C) $\frac{1}{5}$.
- (D) $\frac{3}{10}$.
- (E) $\frac{2}{5}$.

QUESTÃO 21

Seja a função f definida por $f(x) = \ln(x^2) - \frac{1}{x} + k$, com $x \in R_+^*$ e $k \in R$. Sabendo que f tem apenas um zero real, o valor de k é:

- (A) $2 - \ln(2)$.
- (B) $\ln(2) - 2$.
- (C) $2 - \ln(4)$.
- (D) $\ln(4) - 2$.
- (E) $\ln(4) - 4$.

QUESTÃO 22

Suponha que a base de um paralelepípedo reto seja um paralelogramo de lados a e b . Suponha, ainda, que o ângulo obtuso desse paralelogramo seja β . Sabendo que a menor diagonal do paralelepípedo é igual à maior diagonal do paralelogramo, assinale a opção que apresenta o volume do paralelepípedo em função de a, b e β .

- (A) $2ab(\sin(\beta)\sqrt{-ab \cdot \cos(\beta)})$
- (B) $2ab(\sin(\beta)\sqrt{ab \cdot \sin(\beta)})$
- (C) $2ab(\cos(\beta)\sqrt{-ab \cdot \sin(\beta)})$
- (D) $2ab(-\cos(\beta)\sqrt{-ab \cdot \cos(\beta)})$
- (E) $2ab(-\sin(\beta)\sqrt{ab \cdot \cos(\beta)})$

Read the text below and answer question 23.

Dedicated to helping his community
December 2020

When the country went into coronavirus lockdown this year, one Royal Navy sailor sprang into action to protect his local community with all the dedication and efficiency of a military operation.

Chief Petty Officer Sean Mackenzie has served in the Royal Navy for 29 years and works at Royal Navy Air Station Culdrose in Cornwall. So when people in his village of Tregony faced the uncertainty of lockdown in March, CPO Mackenzie knew exactly what to do.

In the navy, he specialises in logistics at 1700 Naval Air Squadron, which deploys teams of sailors around the world to allow flying operations on navy warships, support ships and air bases. He also supervises a team of 70 personnel at Culdrose's extensive supply chain depot.

"From the first day of lockdown, I got together with a couple of former military men and we created our own group," he said. "We did rounds of the village and we deliberately made it as military as we could. I wanted to help my community and these people in it are all part of that together."

His team of volunteers, which grew to 27 people, immediately set up a 'smiley-face system' where anyone, many of them elderly, could indicate with a simple sign in their window if they needed help or not.

Regular smiley-face patrols were soon underway every day in the village of around 450 households. This was followed by a 'buddy system', where socially-isolated people could receive a visit and talk to someone - for many it could be their only contact all day, [...] from a safe distance outside.

The team also prepared an emergency kitchen [...], established their own foodbank and updated noticeboards with the latest advice.

They bought food for those who could not get out, including up to 20 visits a day to the local shop. Soon, dog-walking and pizza-delivery services followed as well as a medicine delivery service, which collected more than 2,000 prescriptions over lockdown, which were then personally handed out to each patient.

All of this was on top of Chief Petty Officer Mackenzie's responsibilities at work, where he continued as a key-worker, helping to ensure that the Royal Navy could still meet its key defence requirements.

"I was really aware that everyone needed help and I was capable of helping. I was also aware that my own parents were sat in a similar situation, but 300 miles away. Here I could do something to help my community."

He has now been singled out for an award by the commanding officer of RNAS Culdrose, Captain Stuart Finn, who said: "Chief Petty Officer Mackenzie has displayed exemplary leadership skills, both in his professional capacity with the Royal Navy and a selfless approach to service in his local community."

(Adapted from "Dedicated to helping his community". *Naval News*, p. 39, December 2020. & <https://www.cornwalllive.com>)

QUESTÃO 23

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

- () After retiring from the Navy, Sean Mackenzie decided to help his community during coronavirus lockdown.
- () Sean Mackenzie was helped by a team of 70 volunteers.
- () People could show that they needed help by putting a sign in their window.
- () Mackenzie and other volunteers helped people in different ways, such as delivering food and medicine to them.
- () Mackenzie's parents, who live near him, also needed help during lockdown.

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

Read the text below and answer questions 24 and 25.

U.K. hospitals are overburdened. But the British love their universal health care

March 7, 2018

When Erich McElroy takes the stage at comedy clubs in London, his routine includes a joke about the first time he went to see a doctor in Britain.

Originally from Seattle, McElroy, 45, has lived in London for almost 20 years. A stand-up comedian, he's made a career out of poking fun at the differences in the ways Americans versus Britons see the world - and one of the biggest differences is their outlook on health care.

"I saw a doctor, who gave me a couple pills and sent me on my way. But I still hadn't really done any paperwork. I was like, 'This isn't right!' " McElroy says onstage, to giggles from the crowd. "So I went back to the same woman, and I said, 'What do I do now?' And she said, 'You go home!'"

The mostly British audience erupts into laughter.

McElroy acknowledges it doesn't sound like much of a joke. He's just recounting his first experience at a U.K. public hospital. But Britons find it hilarious, he says, that an American would be searching for a cash register, trying to find how to pay for treatment at a doctor's office or hospital. It is a foreign concept here, McElroy explains.

Onstage, McElroy recounts how, when the hospital receptionist instructed him to go home, he turned to her and exclaimed, "This is amazing!"

Amazing, he says, because he did not have to pay - at least not at the point of service. In Britain, there is a state-funded system called the National Health Service, or NHS, which guarantees care for all. That means everything from ambulance rides and emergency room visits to long hospital stays, complex surgery, radiation and chemotherapy - are all free. They are paid for with payroll taxes. In addition, any medication you get during a hospital visit is free, and the cost of most prescription drugs at a pharmacy are cheap - a few dollars. (Private health care also exists in the U.K., paid out-of-pocket or through private insurance coverage, but only a small minority of residents opt for it.)

Since the 2008 financial crisis, the U.K., like many countries, has been taking in less tax revenue - so it has had to cut spending. Its expenditure on the National Health Service has still grown, but at a slower pace than before. [...] Wait times at the emergency room are up, says Richard Murray, policy director at the King's Fund, a health care think tank.

"If the ER is really busy, it makes the ambulances queue outside the front door - not great," Murray says. "And in some cases, the hospital is simply full."

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

QUESTÃO 24

Which option replaces the word "overburdened" in the title "U.K. hospitals are overburdened", according to its meaning in the text?

- (A) Completely broke.
- (B) Completely crowded.
- (C) Completely abandoned.
- (D) Extremely expensive.
- (E) Extremely bad.

QUESTÃO 25

According to the text, which option is correct?

- (A) British and American people share the same opinion about health care.
- (B) Mr. McElroy was dissatisfied with his first experience at a British hospital.
- (C) In Britain, the majority of the population prefers the public health system.
- (D) Only British people attend Mr. McElroy's gigs at comedy clubs in London.
- (E) British people do not like it when Mr. McElroy makes fun of the NHS.

Read the text below and answer question 26.

Time to envision legal recourse for climate refugees

As gradually worsening climate patterns and severe weather events prompt an increase in human mobility, people who choose to move will do so with little legal protection. The current system of international law is not equipped to protect climate migrants, as there are no legally binding agreements obliging countries to support climate migrants.

While climate migrants who flee unbearable conditions resemble refugees, the legal protections afforded to refugees do not extend to them. In the aftermath of World War II, the United Nations established a system to protect civilians who had been forced from their home countries by political violence. Today, there are almost 20.4 million officially designated refugees under the protection of the United Nations High Commission for Refugees (UNHCR), but there is an additional group of 21.5 million people who flee their homes as a result of sudden onset weather hazards every year.

The UNHCR has refused to grant these people refugee status, instead designating them as "environmental migrants," in large part because it lacks the resources to address their needs. But with no organized effort to supervise the migrant population, these desperate individuals go where they can, not necessarily where they should. As their numbers grow, it will become increasingly difficult for the international community to ignore this challenge. As severe climate change displaces more people, the international community may be forced to either redefine "refugees" to include climate migrants or create a new legal category and accompanying institutional framework to protect climate migrants. However, opening that debate in the current context would be very difficult. Currently, the atmosphere in Europe and the U.S. would most likely lead to limiting refugee protections rather than expanding them.

(Adapted from <https://www.brookings.edu>)

QUESTÃO 26

Choose the correct option according to the text.

- (A) The number of people who are fleeing home due to climate change is stable.
- (B) There is some similarity between climate migrants and refugees.
- (C) The UNHCR can afford to protect climate migrants and refugees.
- (D) The international community is considering revising the definition for refugee.
- (E) The U.S. and European countries want to increase refugee protections.

QUESTÃO 27

Which is the correct option to complete the text below?

A good CV

It starts with a brilliant summary that makes people _____ more; it is daring, lively. You rarely need _____ trivial details of your early education or training except in passing.

Your CV is a creative document that allows you _____ what you think is appropriate, compared with forms, which confine self-expression; you might as well _____ that freedom!

- (A) to want to read / explain / to say / to use
- (B) want to read / explaining / saying / using
- (C) want to read / to explain / to say / use
- (D) want reading / to explain / say / use
- (E) to want to read / explaining / saying / to use

QUESTÃO 28

Mark the sentence that is INCORRECT.

- (A) You'd feel like dozing off in class if no one could see or hear you doing that.
- (B) If your face is on the screen, it'll definitely make it just a better experience.
- (C) If you have your own space, it can be really easy to live in almost exclusively.
- (D) You'd get bored if you spend your entire day essentially in your bedroom.
- (E) If you see your children are not doing their work, just check up on them.

QUESTÃO 29

Mark the option that completes the excerpt below correctly.

[...] Then he _____ I _____ a lot, and I _____ that I did. He _____ where, and I _____ him that I _____ throughout Europe and to the east coast in America, primarily.

(MCDANIEL, Phyllis. *Over the line: a Detective Bendix mystery VI*. 2013. p. 200)

- (A) asked / travel / said / asked if / told / had gone
- (B) asked / traveled / told / asked if / said / went
- (C) asked if / travel / told / asked / said / go
- (D) asked if / traveled / told / asked / said / go
- (E) asked if / traveled / said / asked / told / went

QUESTÃO 30

Which option completes the text below correctly?

Ultimately you can't go long term without an appropriate duration of sleep, so it's important to try to get _____ sleep _____ nights.

While everyone's exact sleep requirements are different, on average you should be getting between six and nine hours of sleep a night. Your brain is hardwired for what it needs. Getting less sleep than you need can cause sleepiness and moodiness, as well as difficulty concentrating, poor coordination and poor work quality.

Overall it's important to try to maintain a consistent and regular sleep cycle. Be aware that when you miss sleep, it'll take _____ days to get back on track.

(Adapted from <https://wexnermedical.osu.edu/>)

- (A) much / all / a little
- (B) much / every / any
- (C) enough / every / a little
- (D) enough / most / a few
- (E) many / most / a few

QUESTÃO 31

Choose the correct option to complete the text below.

In February, the Royal Navy's submarine HMS Talent (S92) _____ the upgraded Spearfish torpedo near the Isle of Skye to rigorously test it before it _____ service.

During the three-day trial, the torpedo _____ at Talent three times and _____ to safely pass the submarine.

The trials _____ valuable data in the final stages of the upgraded torpedo's development ahead of its entry into service.

The operational version of the weapon _____ to all front-line Royal Navy submarines by 2025.

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

- (A) was fired / will enter / fired / programmed / provided / will introduce
- (B) fired / enters / was fired / was programmed / provided / will be introduced
- (C) was fired / entered / was fired / was programmed / were provided / will introduce
- (D) fired / enters / fired / was programmed / were provided / will introduce
- (E) was fired / entered / fired / programmed / provided / will be introduced

QUESTÃO 32

Which is the correct option to complete the text below?

Personnel aboard HMS Queen Elizabeth _____ in a sports day to reinvigorate interest in team sports.

The event, led by the NAVYfit team at HMS Temeraire, working under Covid-19 guidance, provided an opportunity for personnel to _____ in a range of activities, designed to show the importance of sport and fitness to health and well-being.

("Sporting opportunities for carrier personnel". *Naval News*, p. 36, December 2020.)

- (A) took part / take part
- (B) took place / take place
- (C) got over / take off
- (D) got up / get up
- (E) got away with / get away with

QUESTÃO 33

Read the information below.

How do I know if I'm eligible to apply to the Naval Academy?

You must be:

- at least 17 years of age and must not have passed your 23rd birthday on July 1st of the year of admission;
- unmarried, not pregnant and have no incurred obligations of parenthood; and
- a United States citizen (except for the limited quotas of international midshipmen specifically authorized by Congress).

(Adapted from <https://www.usna.edu/>)

Considering only the requirements above, who can apply to the Naval Academy?

- (A) A woman who is expecting a baby.
- (B) A married American man who is eighteen years old.
- (C) Any foreign person who lives in the US.
- (D) A nineteen-year-old American woman who is single.
- (E) An unmarried man over twenty-four who was born in the US.

QUESTÃO 34

Which option completes the paragraph below correctly?

"Would you like to go to Vyas Chhatri, madam?" Lal asks, as I get back into the car. "It was built in honour of Maharishi Ved Vyas. I'm sure your head tells you to go back, but your heart doesn't want to let go of the opportunity, _____?"

(Adapted from www.travelandleisureindia.in)

- (A) aren't you
- (B) isn't it
- (C) does it
- (D) is it
- (E) doesn't it

QUESTÃO 35

Which is the correct option to complete the text below?

Social engineering: here's how you _____ be hacked

Learn how social engineering _____ affect you, plus common examples to help you identify and stay safe from these schemes.

Social engineering is an important term in the security world, but you _____ not be familiar with exactly what it means. While it is a broad subject, there are specific types of social engineering that we _____ examine to learn more. Let's look at social engineering as a concept so you _____ avoid falling victim to it.

Social engineering is the act of manipulating people to steal private information from them, or make them give up such confidential details.

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

- (A) could / can / might / can / can
- (B) must / should / must / could / must
- (C) should / must / might / ought to / can
- (D) must / can / must / can / should
- (E) could / should / must / ought to / must

QUESTÃO 36

Read the sentences below.

- I- She has a _____ job.
- II- I enjoyed the movie at first, but after a time I got _____ with it.
- III- I was _____ at her knowledge of literature.
- IV- Which do you find more _____, traveling by car or by bus?

Which option completes the sentences correctly?

- (A) stressed / boring / surprised / tired
- (B) stressful / boring / surprising / tiring
- (C) stressing / bored / surprising / tired
- (D) stressed / boring / surprised / tireless
- (E) stressful / bored / surprised / tiring

QUESTÃO 37

Which word best completes the question below?

_____ advice do you follow more, your parents' or your friends' advice?

- (A) Who
- (B) Whom
- (C) Whose
- (D) When
- (E) Where

QUESTÃO 38

Which option completes the paragraph below correctly?

[...] Go on, don't let the conversation die. Say something; just keep talking. "Do you read many novels? You do? _____, or some at least, though nonfiction is more in my line....".

(Adapted from CALVINO, Italo. *If on a winter's night a traveller*. Harcourt Brace Jovanovich, Inc., 1981. p.21)

- (A) I do neither
- (B) So do I
- (C) Nor do I
- (D) So I do
- (E) Neither do I

QUESTÃO 39

Which option completes the text below correctly?

Do you feel mentally drained out _____ office? Are you constantly worried _____ meeting your deadline or are unable _____ achieve your targets? All these can lead _____ stress, a phenomenon faced _____ the majority of the working population.

(<https://www.thehealthsite.com>)

- (A) after / with / of / to / for
- (B) after / about / to / to / by
- (C) before / with / of / from / with
- (D) before / of / to / from / by
- (E) during / about / of / to / for

QUESTÃO 40

Which option completes the paragraph below correctly?

Brazil has joined Combined Maritime Forces (CMF)


“On July 30th, the Brazilian Navy _____ the invitation letter from the CCFM accepting the affiliation as a full member of the CMF. The Brazilian Navy _____ this kind of event an excellent opportunity _____ ties of friendship, as well as _____ cooperation and mutual respect among the participating navies,” a spokesperson for the Brazilian Navy _____.

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

- (A) answered / will consider / to reinforce / to promote / say
- (B) has answered / has considered / reinforcing / promoting / say
- (C) answers / considered / reinforces / promotes / says
- (D) answered / considers / to reinforce / to promote / said
- (E) has answered / will consider / to reinforce / promoting / said

INSTRUÇÕES GERAIS AO CANDIDATO

- 1 - Verifique se a prova recebida e a folha de respostas são da mesma cor (consta no rodapé de cada folha a cor correspondente) e se não faltam questões ou páginas. Escreva e assinhe corretamente o seu nome, coloque o seu número de inscrição e o dígito verificador (DV) apenas nos locais indicados;
- 2 - O tempo para a realização da prova será de **05 (cinco) horas**, incluindo o tempo necessário à marcação das respostas na folha de respostas, e não será prorrogado;
- 3 - Só inicie a prova após ser autorizado pelo Fiscal, interrompendo sua execução quando determinado;
- 4 - Iniciada a prova, não haverá mais esclarecimentos. O candidato somente poderá deixar seu lugar, devidamente autorizado pelo Supervisor/Fiscal, para se retirar definitivamente do recinto de prova ou, nos casos abaixo especificados, devidamente acompanhado por militar designado para esse fim:
 - atendimento médico por pessoal designado pela MB;
 - fazer uso de banheiro; e
 - casos de força maior, comprovados pela supervisão do certame, sem que aconteça saída da área circunscrita para a realização da prova.
 Em nenhum dos casos haverá prorrogação do tempo destinado à realização da prova, em caso de retirada definitiva do recinto de prova, esta será corrigida até onde foi solucionada;
- 5 - Use caneta esferográfica preta ou azul para preencher a folha de respostas;
- 6 - Confira nas folhas de questões as respostas que você assinalou como corretas antes de marcá-las na folha de respostas. Cuidado para não marcar duas opções para uma mesma questão na folha de respostas (a questão será perdida);
- 7 - Para rascunho, use os espaços disponíveis nas folhas de questões, mas só serão corrigidas as respostas marcadas na folha de respostas;
- 8 - O tempo mínimo de permanência dos candidatos no recinto de aplicação de provas é de **150 minutos**.
- 9 - Será eliminado sumariamente do processo seletivo/concurso e suas provas não serão levadas em consideração, o candidato que:
 - a) der ou receber auxílio para a execução de qualquer prova;
 - b) utilizar-se de qualquer material não autorizado;
 - c) desrespeitar qualquer prescrição relativa à execução das provas;
 - d) escrever o nome ou introduzir marcas identificadoras noutro lugar que não o determinado para esse fim;
 - e) cometer ato grave de indisciplina; e
 - f) comparecer ao local de realização da prova após o horário previsto para o fechamento dos portões.
- 10 - Instruções para o preenchimento da folha de respostas:
 - a) use caneta esferográfica azul ou preta;
 - b) escreva seu nome em letra de forma no local indicado;
 - c) assinhe seu nome no local indicado;
 - d) no campo inscrição DV, escreva o seu número de inscrição nos retângulos, da esquerda para a direita, um dígito em cada retângulo. Escreva o dígito correspondente ao DV no último retângulo. Após, cubra todo o círculo correspondente a cada número. Não amasse, dobre ou rasgue a folha de respostas sob pena de ser rejeitada pelo equipamento de leitura ótica; e
 - e) só será permitida a troca de folha de respostas até o início da prova, por motivo de erro no preenchimento nos campos nome, assinatura e número de inscrição, sendo de inteira responsabilidade do candidato qualquer erro ou rasura na referida folha de respostas, após o início da prova.
- 11 - Procure preencher a folha com atenção de acordo com o exemplo abaixo:



Nome: **ROBERTO SILVA**

Assinatura: **Roberto Silva**

Instruções de Preenchimento

- * Não rasure esta folha.
- * Não rabisque nas áreas de respostas.
- * Faça marcas sólidas nos círculos.
- * Não use canetas que borrem o papel.

ERRADO: CORRETO:

PREENCHIMENTO DO CANDIDATO

INSCRIÇÃO										DV	P	G
5	7	0	2	0	7	0	2	4				
0	1	2	3	4	5	6	7	8	9			

PREENCHIMENTO DA DEnaM

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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- 12 - Não será permitido levar a prova após sua realização. O candidato está autorizado a transcrever suas respostas, dentro do horário destinado à solução da prova, utilizando o modelo impresso no fim destas instruções para posterior conferência com o gabarito que será divulgado. É proibida a utilização de qualquer outro tipo de papel para anotação do gabarito.

ANOTE SEU GABARITO															PROVA DE COR _____																																		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50