TEST MATEMATICĂ ȘI LIMBA ENGLEZĂ
VARIANTA 1

Matematică

1) Rezultatul calculului $\left(7 - 7 \cdot \dfrac{1}{6} \cdot \dfrac{1}{7}\right) \cdot \dfrac{6}{41}$ este:

a) $\dfrac{3}{41}$ b) 1   c) 2   d) $\dfrac{1}{7}$

2) Coordonatele punctului de intersecție între graficele funcțiilor
$f : \mathbb{R} \to \mathbb{R}, f(x) = 3x - 6$ și $g : \mathbb{R} \to \mathbb{R}, g(x) = 2 - x$ sunt:

a) $(2;0)$ b) $(2;1)$ c) $(1;2)$ d) $(0;2)$

3) Se consideră x_1 și x_2 soluțiile ecuației $2x^2 - 4x + 3 = 0$. Rezultatul calculului
$x_1 + x_2 - 2x_1 x_2$ este:

a) $\dfrac{1}{2}$ b) -2   c) 0   d) -1

4) Rația progresiei aritmetice $(a_n)_{n \geq 1}$ în care $a_3 = 6$ și $a_7 = 14$ este :
a) 1   b) 2   c) 3   d) 4

5) Fie mulțimea A=$\{x \in \mathbb{N} \mid 2x - 3 \leq 0\}$. Numărul elementelor mulțimii A este:
a) 1   b) 2   c) 3   d) o infinitate

6) Partea imaginară a numărului complex $z = (1 + i)^2$, unde $i^2 = -1$ este:
a) 1   b) 2   c) -1   d) -2

7) Suma soluțiilor ecuației $3^{x^2 - 3x + 5} = 27$ este:
a) 3   b) 5   c) 9   d) 4

8) Soluția ecuației $\sqrt{9 - x} = x - 3$ este:
a) 0   b) 2   c) 3   d) 5

9) Soluția ecuației $\log_7(2 - 5x) = 1$ este:
a) 0   b) 1   c) -1   d) 2

10) În câte moduri poate fi aleasă o echipă formată din 3 elevi din totalul de 5 elevi pe care îi are la dispoziție un antrenor?

a) 10   b) 9   c) 8   d) 7

11) Termenul al treilea al dezvoltării $\left(x^2 + \dfrac{1}{x^2} \right)^{10}$ este:

a) $36x^{10}$ b) $45x^{12}$ c) $25x^6$ d) $50x^8$

12) Se dau matricele $A = \begin{pmatrix} 2 & 1 \\ -3 & -2 \end{pmatrix}$ și $I_2 = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$. Matricea A^2 este:

a) $2A$ b) $-A$ c) $-I_2$ d) I_2

13) Soluția ecuației $\begin{vmatrix} 1 & 3 \\ x & 4 \end{vmatrix} = -5$ este:

a) 2   b) 3   c) -3   d) -2

14) Valoarea parametrului real m pentru care sistemul $\begin{cases} mx + 2y + 2z = 0 \\ mx + my + z = 0 \\ x + my + z = 0 \end{cases}$ admite și

soluții diferite de soluția banală este:

a) $m=1$ b) $m \in \mathbb{R} \setminus \{1\}$ c) $m = -1$ d) $m \in \mathbb{R} \setminus \{-1\}$

15) Pe $\mathbb{R}$ se definește legea de compoziție $x * y = xy - x - y + 2$.
Rezultatul calculului $1 * 2$ este:

a) 1   b) 2   c) -1   d) -2

16) Rezultatul calculului $\cos 60° \sin 60° + \sin 90° - \sin 30° \cos 30°$ este:

a) -1   b) 1   c) 2   d) -2

17) Fie $x \in \left[0; \dfrac{\pi}{2} \right]$, astfel încât $\cos x = \dfrac{1}{5}$, atunci tgx este:

a) 2   b) $2\sqrt{3}$ c) 3   d) $2\sqrt{6}$

18) Fie $x \in [0; 2\pi]$. Ecuația $\cos^2 x - 4\cos x + 3 = 0$ are soluțiile:

a) $\left\{ \dfrac{\pi}{3}; \dfrac{\pi}{2} \right\}$ b) $\left\{ \dfrac{3\pi}{2}; 2\pi \right\}$ c) $\left\{ 0; \dfrac{\pi}{2} \right\}$ d) $\{ 0; 2\pi \}$

Limba Engleză

Partea I : CITIT

Choose the correct answer a), b), c) or d):

Mount Everest, Nepal

Located in the subrange of the Himalayas, Mount Everest is the world's highest mountain, standing at 29,029 feet (8,848 meters). The Himalayas mountain chain was formed when the Indian tectonic plate, or in other words massive rocks, pushed against the Asian plate.

British mountaineers tried to ascent to the summit of Mount Everest eight times before two of them finally succeeded in 1953. Several thousands of people have climbed to the peak since then, normally with the assistance of Sherpas, local Nepalese people who carry the equipment and know the mountain very well.

Because of the harsh climate and the temperature that can drop down to -76°F (-60°C), this is a very dangerous journey. The mountain is so high that the climbers have to use bottled oxygen to keep their lungs functioning. Interestingly, the summit point also lies on the international border between Tibet and Nepal.

1. What does "ascent" mean?
a) slide down
b) gradually become stronger
c) climb, move upwards
d) push against

2. The _____ climate makes climbing Mount Everest very dangerous.
a) cruel
b) harsh
c) pressure
d) changing

3. On Mount Everest, the temperature can drop _____ to -60°C.
a) low
b) down
c) close
d) rise

4. Why do most mountaineers hire Sherpas?
a) to carry the equipment
b) to find oxygen
c) to communicate with local people
d) to secure the border between Tibet and Nepal

5. Based on the information in the reading, which statement is false?
a) On Mount Everest, mountaineers use bottled oxygen only in rare circumstances.
b) It is nearly impossible to climb Mount Everest without additional oxygen.
c) Mount Everest is the world's highest mountain.
d) Several thousands of people have climbed Mount Everest to the peak.

Partea a II-a:
ELEMENTE DE GRAMATICA, VOCABULAR ŞI STRUCTURI SCRISE

Choose the correct answer a), b), c) or d):

6. Are there _____ letters for me?
a) anyone
b) something
c) anything
d) any

7. When I arrived at the restaurant, Jane _____ lunch.
a) has already having
b) has already have
c) was already had
d) had already had

8. Tom lives 35 miles away from Bucharest. Mary lives 70 miles away. John lives 15 miles away. Mary's house is_____ Bucharest .
a) as near as
b) as far as
c) the nearest to
d) the farthest from

9. Sally _____ to class last Monday.
a) hasn't come
b) didn't come
c) isn't coming
d) doesn't came

10. Find the antonym for the underlined words:
 He was trying to <u>get out of </u>the building.
a) find
b) leave
c) examine
d) enter

11. Carmen has been studying for two hours.
a) She started studying two hours ago.
b) She finished studying two hours ago.
c) She is going to study for two hours.
d) She was going to study for two hours.

12. He spent all his spare time planting trees last year, _____?
a) isn't he
b) doesn't he
c) didn't he
d) hasn't he

13. I'm returning ____France_____ the end of the month.
a) in, to
b) to, on
c) at, in
d) to, at

14. What does "accountable" mean?
a) possible to count
b) related to a bank account
c) responsible for own actions
d) pay back

15. How old is Jack?
a) He is in his late thirties.
b) Jack went downtown an hour ago.
c) 15, Elm Street, Toronto
d) He is my brother's son.

16. Find the correct sentence
a) The meeting cancelled was because of the epidemic flu.
b) Because of the flu epidemic was the cancelled meeting.
c) The meeting was cancelled because of the flu epidemic.
d) The flu epidemic was cancelled because of the meeting.

17. Find the correct sentence
a) "Let me explain," He said.Dont be in such a hurry."
b) Let me explain, he said. Don't be in such a hury.
c) "Let me explain," he said. "Don't be in such a hurry."
d) "Let me explaine, he said." Don't be in such a hurry.

18. How do you end a letter that starts "Dear Sir/Madam"?
a) Yours faithfully, Jack Smith
b) Cheers!
c) XOXO
d) See you soon.