ROMÂNIA
MINISTERUL APĂRĂRII NAŢIONALE
ŞCOALA MILITARĂ DE MAIŞTRI MILITARI ŞI
SUBOFIŢERI A FORŢELOR AERIENE „TRAIAN VUIA"
CONCURS DE ADMITERE
SESIUNEA AUGUST 2018

NECLASIFICAT
Exemplar unic

PREŞEDINTELE COMISIEI CONCURSULUI DE ADMITERE

## TEST GRILĂ DE VERIFICARE A CUNOŞTINELOR LA LA MATEMATICĂ ŞI FIZICĂ
### - PROFILUL MAIŞTRI MILITARI –

### VARIANTA NR.3

**1.** Fie a,b $\in$ R cu proprietatea că a + b = 5, a x b = 6. Valoarea expresiei E = $\dfrac{1}{a^2} + \dfrac{1}{b^2}$ este

a) 0,36;     b) 0,15;     c) 0,5;     d) 0,7.

**2.** Fie şirul cu termenul general a$_n$ = $\dfrac{3n+2}{n+1}$ , n $\in$ N$^*$. Care din următoarele afirmaţii sunt adevărate?

a) şirul este monoton strict crescător;
b) şirul este monoton strict descrescător;
c) şirul este monoton descrescător;
d) şirul nu este şir monoton.

**3.** Soluţia ecuaţiei $|x+2| + |x+5| = 7$ este:

a)  S = $\{-7\}$;     b)  S = $\{0\}$;     c)  S = $\{-7,0\}$;     d)  S = $.\phi$ .

**4.** Numerele x,y $\in$ R pentru care are loc egalitatea x + 2y + (y-3x)i = 5 – 8i sunt:

a) x = 3, y = 1;     b) x = 1, y = 3;     c) x = -3, y = 1;     d) x = -1, y = 3.

**5.** Rezultatul calculului 5! -3! este:

a) 113;     b) 115;     c) 114;     d) 116.

**6.** Pentru matricea A = $\begin{pmatrix} 2 & -1 & 0 \\ 3 & 4 & -5 \\ 1 & 0 & 1 \end{pmatrix}$ $\in$ M$_3$(R) determinantul ei este:

a) 15;     b) 14;     c) 16;     d) 13.

**7.** Fie funcția f:R → R, f(x) = (3m-2) x+5, m ∈ R. Valoarea lui m astfel încât (1,6) ∈ $G_f$ este:

a) m = 2;      b) m = 1;      c) m = 3;      d) m = 4.

**8.** Să se determine mulțimea numerelor reale cu proprietatea $\left[\dfrac{x+6}{2}\right] = 3$, știind că $[\ ]$ reprezintă partea întreagă.

a) $[-0,1)$;      b) $[-1,1)$;      c) $[0,2)$;      d) $[1,3)$.

.

**9.** Fie x ∈ R și numerele (4x-9), $(x^2-4)$, (2x+1) în progresie aritmetică. Să se determine x.

a) $x_1 = -1, x_2 = 0$;      b) $x_1 = 0, x_2 = 3$;      c) $x_1 = 2, x_2 = -2$;      d) $x_1 = -3, x_2 = 3$.

**10.** Fie funcția f : R → R, $f(x) = 2x^2 - 3x + 9$. Punctul de intersecție al graficului funcției cu axa ordonatelor $O_y$ este:

a) $\{(0,9)\}$;      b) $\{(0,8)\}$;      c) $\{(0,7)\}$;      d) $\{(0,6)\}$.

**11.** Soluțiile sistemului de ecuații $\begin{cases} 2x - y = \dfrac{3}{2} \\ -x + y = 1 \end{cases}$ sunt

a) $x = \dfrac{5}{2}, y = -\dfrac{7}{2}$;      b) $x = -\dfrac{5}{2}, , y = \dfrac{7}{2}$;      c) $x = \dfrac{5}{2}, y = \dfrac{7}{2}$      d) x= 1, y= -1.

**12.** Soluțiile complexe ale ecuației $2x^2 - 8x + 10 = 0$ sunt:

a) $x_1 = -3+i, x_2 = -3-i$;      b $x_1 = 3+i, x_2 = 3-i$;      c) $x_1 = -2+i, x_2 = -2-i$;      d) $x_1 = 2+i, x_2 = 2-i$.

**13.** Soluțiile ecuației $2x^4-4x^2-16 = 0$ sunt:

a) $x_1 = 2, x_2 = -2, x_3 = i\sqrt{2}, x_4 = -i\sqrt{2}$   ;
b) $x_1 = -3, x_2 = -3, x_3 = i\sqrt{3}, x_4 = -i\sqrt{3}$
c) $x_1 = 4, x_2 = -4, x_3 = 2i, x_4 = -2i$
d) $x_1 = 5, x_2 = -5 \ x_3 = i\sqrt{5}, x_4 = -i\sqrt{5}$

**14.** Fie matricele A = $\begin{pmatrix} 1 & -1 & 2 \\ 3 & 0 & 4 \end{pmatrix}$ și B = $\begin{pmatrix} 2 & 2 \\ -1 & 4 \\ 5 & -3 \end{pmatrix}$, A $\in M_{2,3}(R)$, B$\in M_{3,}(R)$. Produsul A $\bullet$ B este

a) $\begin{pmatrix} 12 & -8 \\ 25 & -6 \end{pmatrix}$;     b) $\begin{pmatrix} 13 & -8 \\ 26 & -6 \end{pmatrix}$;     c) $\begin{pmatrix} 13 & -7 \\ 26 & -6 \end{pmatrix}$;     d) $\begin{pmatrix} 12 & -9 \\ 25 & -5 \end{pmatrix}$.

**15.** Rezultatul diferenței $\log_7 8$ - $\log_7 \dfrac{56}{49}$ este:

a) 4;     b) 2;     c) 3;     d) 1.

**16.** Pentru a decola, un avion trebuie să atingă viteza de 180 km/h. Ce distanță trebuie să parcurgă pe pistă pentru a atinge această viteză, dacă el rulează cu accelerația constantă a = 2,5 m/s$^2$

a) 600 m;     b) 450 m;     c) 400 m;     d) 500 m.

**17.** Se dă legea de mișcare: x(t) = 15 + 4t + 0,5 t$^2$. Calculați viteza mobilului după 2 s.

a) 6 m/s;     b) 4 m/s;     c) 8 m/s;     d) 5 m/s.

**18.** Asupra unui corp cu masă m = 1 kg aflat pe o suprafață orizontală acționează o forță F = 6N orientată orizontal. Cunoscând coeficientul de frecare dintre corp și planul orizontal μ = 0,4, determinați accelerația corpului. Pentru calcul simplificat se consideră g = 10 m/s$^2$.

a) 6 m/s$^2$;     b) 3 m/s$^2$;     c) 2 m/s$^2$;     d) 4 m/s$^2$.

**19.** Să se determine raza R a unui disc, dacă viteza tangențială a punctelor periferice este $v_1$=6 m/s, iar a punctelor aflate cu l = 15 cm mai aproape de axa de rotație este $v_2$=5,5 m/s. Exprimați rezultatul în metri.

a) 1,8 m;     b) 2 m;     c) 4 m;     d) 0,5 m.

**20.** Unitatea de măsură pentru sarcina electrică este:

a) V;     b) A;     c) C;     d) $\Omega$.

**21.** Simbolul din figura alăturată reprezită: 

a) generator;     b) rezistor;     c) ampermetru;     d) voltmetru.

**22.** . Calculați rezistența echivalentă între bornele A și B pentru rețeaua electrică reprezentată în figura de mai jos. Se cunosc: $R_1 = 10\,\Omega$; $R_2 = 5\,\Omega$; $R_3 = 36\,\Omega$; $R_4 = R_5 = 3\,\Omega$.
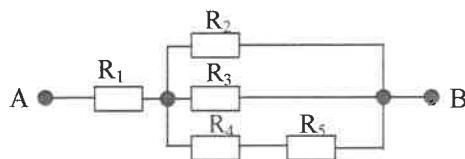


a) $12,76\,\Omega$;     b) $10,76\,\Omega$;     c) $11,87\,\Omega$;     d) $9,76\,\Omega$.

**23.** Un automobil parcurge prima jumătate din timpul total de mișcare cu viteza constantă $v_1 = 40$ km/h, iar a doua jumătate cu viteza constantă $v_2 = 60$ km/h. Cu ce viteză medie s-a deplasat automobilul?

a) $v_m = 60$ km/h;     b) $v_m = 40$ km/h;     c) $v_m = 50$ km/h;     d) $v_m = 30$ km/h.

**24.** Se dă legea de mișcare $x(t) = 20 + 2t + 2t^2$. Ecuația vitezei cu care se deplasează mobilul este de forma:

a) $v = 8 + 4t$;     b) $v = 4 + 2t$;     c) $v = 2 + 4t$;     d) $v = 2 + 8t$.

**25.** De la înălțimea H = 180 m este lăsat să cadă liber un corp. Calculați timpul de cădere și viteza corpului la sol. Pentru calcul simplificat se consideră $g = 10$ m/s$^2$.

a) 3s,  60 m/s;     b) 10 s,  60 m/s;     c) 6 s,  10 m/s;     d) 6s,  60 m/s.

**26.** De un resort cu constanta elastică K = 200 N/m se agață un corp cu masa m = 10 kg. Pentru calcul simplificat se consideră $g = 10$ m/s$^2$. Lucrul mecanic al forței elastice are valoarea:

a) 25 J;     b) -25 J;     c) -30J;     d) 50J.

**27.** Intensitatea curentului ce străbate un circuit simplu care cuprinde un rezistor cu R = 18 $\Omega$ și o sursă cu rezistența interioară r =2 $\Omega$ și curentul I = 140 mA. Calculați tensiunea la bornele sursei.

a) 1,2 V;     b) 1,4 V;     c) 2,8 V;     d) 1 V.

**28.** Ce sarcină electrică este transportată în $\Delta t$ = 60 s, printr-o secțiune a unui conductor de un curent cu intensitatea constantă I = 1,5 A?

a) 60C;     b) 90C;     c) 70A;     d) 80 A.

**29.** Un circuit electric simplu este format dintr-un rezistor de rezistență R = 28 $\Omega$ și un generator caracterizat prin E = 3V și r = 2 $\Omega$. Calculați intensitatea curentului electric.

a) 0,2A;     b) 0,1A;     c) 0,3A;     d) 0,5A.

**30.** Pentru circuitul din figura de mai jos se cunosc următoarele: $I = 9A$, $I_1 = 6A$, $R_1 = 3\,\Omega$. Calculați rezistența $R_2$.
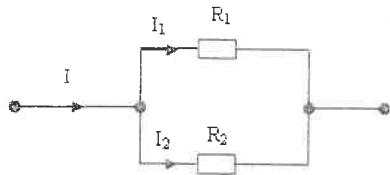


a) $4\,\Omega$;    b) $16\,\Omega$;    c) $6\,\Omega$;    d) $2\,\Omega$.

## GRILA DE CORECTARE LA MATEMATICĂ ȘI FIZICĂ
### – PROFILUL MAIȘTRI MILITARI –

### VARIANTA NR.3

| Nr.item | Răspuns | Nr.item | Răspuns |
|---------|---------|---------|---------|
| 1. | a | 16. | d |
| 2. | a | 17. | a |
| 3. | c | 18. | c |
| 4. | a | 19. | a |
| 5. | c | 20. | c |
| 6. | c | 21. | a |
| 7. | b | 22. | c |
| 8. | c | 23. | c |
| 9. | b | 24. | c |
| 10. | a | 25. | d |
| 11. | c | 26. | b |
| 12. | d | 27. | c |
| 13. | a | 28. | b |
| 14. | b | 29. | b |
| 15. | d | 30. | c |

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## TEST GRILĂ LA LIMBA ENGLEZĂ
### - PROFILUL MAIŞTRI MILITARI –

### VARIANTA NR.3

**Partea I: CITIT**

At 1.50 am on 3rd February 1959 the American pop star Buddy Holly died in a plane crash along with Richie Valens and the Big Bopper. Holly was 22 years old. His name became a legend; songs like "Raining in my Heart", first released after his death were immediate hits in both America and Britain. Unlike Elvis Presley and other pop stars of his time, Holly was not handsome or loud. He was modest, sensitive and easy to understand. He was tall and slim and wore black horn – rimmed glasses. He was more like a school – boy than a pop star. His music style was unique and continued to influence pop music well into the mid – sixties. In the song American Pie, Don Mclean sang about the death of Buddy Holly as "The day the music died".

1. The text mainly informs us about:

    a. Buddy Holly
    b. American Pie
    c. Don Mclean
    d. Elvis Presley.

2. He died along with:
    a. Don Mclean
    b. Elvis Presley
    c. Richie Valens and Big Bopper
    d. "The day the music died"

3. His song "Raining in my heart" became a hit in: _____
    a. The day the music died
    b. America only
    c. Britain only
    d. both America and Britain

4. The main idea of the text is that:
    a. Buddy Holly was an American pop star
    b. Buddy Holly was handsome
    c. Buddy Holly was loud
    d. Buddy Holly wore glasses

5. The song "American Pie" was sung by:
    a. Buddy Holly
    b. Don Mclean
    c. Elvis Presley
    d. Big Bopper

Farrokh Bulsara (5 September 1946 – 24 November 1991), known professionally as Freddie Mercury, was a British singer, songwriter and record producer, best known as the lead vocalist of the rock band Queen. He was known for his flamboyant stage persona and four – octave vocal range. Mercury wrote numerous hits for Queen, including "Bohemian Rhapsody", "Killer Queen", "Somebody to Love", "Don't Stop Me Now", "Crazy Little Thing Called Love" and "We Are the Champions". He led a solo career while performing with Queen, and occasionally served as a producer and guest musician for other artists.

Mercury was born of Parsi descent on Zanzibar, and grew up there and in India before moving with his family to Middlesex, England, in his teens. He formed Queen in 1970 with guitarist Brian May and drummer Roger Taylor. Mercury died in 1991 at age 45 due to complications from AIDS, having confirmed the day before his death that he had contracted the disease.

6. The text mainly presents the life and career of :
    a. Bohemian Rhapsody.
    b. Freddie Mercury.
    c. We are the Champions.
    d. The Queen.

7. The main idea of the text is that Freddie Mercury was:
    a. a singer, songwriter and record producer
    b. only a singer
    c. only a songwriter
    d. a queen.

8. What was Freddie Mercury's real name?
    a. The queen
    b. Farrokh Bulsara
    c. Freddie Mercury
    d. Killer Queen.

9. When was Freddie Mercury born?
   a. 1946
   b. 1991
   c. 1970
   d. 45

10. He is best known for his cooperation with the rock band, Queen as a :
    a. producer
    b. Lead vocalist
    c. guest musician
    d. songwriter

11. What month was Freddie Mercury born?
    a. March
    b. November
    c. December
    d. September.

Association football, more commonly known as football or soccer, is a team sport played between two teams of eleven players with a spherical ball. It is played by 250 million players in over 200 countries and dependencies, making it the world's most popular sport. The game is played on a rectangular field with a goal at each end. The object of the game is to score by moving the ball beyond the goal line into the opposing goal.

Association football is one of a family of football codes which emerged from various ball games played worldwide since antiquity. The modern game traces its origins to 1863 when the Laws of the Game were originally codified in England by the Football   Association.

12. The text mainly describes the:
    a. football game.
    b. spherical ball.
    c. opposing goal.
    d. the field.

13. How many players play this game worldwide?
    a. 200 players.
    b. 250 million players
    c. 1863
    d. Laws of the game.

14. How many players are in a team?
    a. 200
    b. two
    c. 250.
    d. eleven.

15. How many teams are needed to play a game?
   a. 1863 teams
   b. eleven teams
   c. 200 teams.
   d. two teams.

## PARTEA a II-a: GRAMATICA

16. Susan is _____ her room .
   a.  in
   b.  at
   c.  below
   d.  under

17. We only _____ fast food.
   a.  eat
   b.  eats
   c.  eaten
   d.  eating

18. Johnny _____ school ten years ago.
   a.  starts
   b.  started
   c.  likes
   d.  liking

19. My grandmother has 30 chickens, 20 ducks and 10 _____.
   a.  geese
   b.  goose
   c.  gooses
   d.  geeses

20. Sam is really fat. He _____ pasta every day.
   a.  eat
   b.  eats
   c.  ate
   d.  eating

21. I _____ football tomorrow.
   a.  playing
   b.  will played
   c.  plays
   d.  will play

22. She is _____ woman I've ever seen.
      a. more beautiful
      b. the most beautiful
      c. the more beautiful
      d. the most beautifulest

23. _____ Jeremy drink coffee in the morning?
      a. Does
      b. Do
      c. Has
      d. Was

24. There are two _____ playing outside.
      a. childes
      b. child
      c. childs
      d. children

25. We _____ brothers.
      a. being
      b. is
      c. am
      d. are

## PARTEA a III-a: VOCABULAR

26. Mary likes playing the _____:
      a. violin
      b. car
      c. horse
      d. jetplane

27. Mrs. Jenkins is a nice old lady from our town. She'll turn 85 this month and she is very healthy. She goes to the market by _____
      a. dog
      b. foot
      c. donkey
      d. bye

28. The Romanian flag has three colours:
      a. Red, yellow and blue
      b. Red, white and blue
      c. Black, red and yellow
      d. Red, white and green

29. What day comes after Sunday?
    a. Tuesday
    b. Monday
    c. Friday
    d. Saturday

30. If today is Friday, what day was yesterday?
    a. Tomorrow
    b. Tuesday
    c. Saturday
    d. Thursday

31. I wake up at 05:15 every morning.
    a. a quarter two five
    b. a quarter to five
    c. a quarter past five
    d. half past five

32. Sheep are _____ animals.
    a. green
    b. wild
    c. domestic
    d. cruel

33. My mother is a _____ person. She takes care of the whole family.
    a. caring
    b. sensible
    c. sad
    d. elegant

34. Orange is a _____
    a. sport
    b. colour
    c. TV
    d. CD

35. When I arrived in front of the door I _____ that I forgot my keys at work.
    a. refused
    b. read
    c. represented
    d. remembered

36. What is the correct order?
    a. Lend me some money.
    b. Money lend me some.
    c. Some me lend money.
    d. Money lend me some

37. How do you start a formal letter?
    a. Dear Sir / Dear Madam,
    b. Dear Mr. Sir,
    c. Dear Mrs. Madam,
    d. Dear John

38. Choose the most appropriate line to start an informal letter.
    a. Dear Tabitha,
    b. Dear Sir,
    c. Dear Madame,
    d. See you.

39. How do you end an informal letter?
    a. Hello
    b. Dear Sir
    c. Dear Mary
    d. Love

40. How do you start a *thank you* letter?
    a. Sincerely yours.
    b. I regret to thank you...
    c. I am sorry to thank you...
    d. I would like to thank you....

41. What is the correct order?
    a. Does anyone know how to turn on the washing machine?
    b. Anyone know does how to turn on the washing machine?
    c. Does know how anyone to turn on the washing machine?
    d. Does the washing machine know anyone how to turn on?

42. A letter should have:
    a. introduction and body
    b. introduction, body and ending..
    c. introduction and ending.
    d. only the body.

43. In order to apply for a job you have to:
    a. listen to a song.
    b. write an informal letter.
    c. write a book.
    d. write a formal letter.

44. How do you end a formal letter?
    a. Faithfully yours,
    b. Best wishes
    c. Faith
    d. Love and kisses

45. Which is the correct order?
    a. I love my job.
    b. Job love my I.
    c. Love I may job.
    d. I love job my.

## GRILA DE CORECTARE
### -TEST GRILĂ LA LIMBA ENGLEZA-
### - PROFILUL MAIŞTRI MILITARI
### VARIANTA NR. 3

| Item | Răspuns |
|------|---------|
| 1.   | a       |
| 2.   | c       |
| 3.   | d       |
| 4.   | a       |
| 5.   | b       |
| 6.   | b       |
| 7.   | a       |
| 8.   | b       |
| 9.   | a       |
| 10.  | b       |
| 11.  | d       |
| 12.  | a       |
| 13.  | b       |
| 14.  | d       |
| 15.  | d       |
| 16.  | a       |
| 17.  | a       |
| 18.  | b       |
| 19.  | a       |
| 20.  | b       |
| 21.  | d       |
| 22.  | b       |
| 23.  | a       |
| 24.  | d       |
| 25.  | d       |

| Item | Răspuns |
|------|---------|
| 26.  | a       |
| 27.  | b       |
| 28.  | a       |
| 29.  | b       |
| 30.  | d       |
| 31.  | c       |
| 32.  | c       |
| 33.  | a       |
| 34.  | b       |
| 35.  | d       |
| 36.  | a       |
| 37.  | a       |
| 38.  | a       |
| 39.  | d       |
| 40.  | d       |
| 41.  | a       |
| 42.  | b       |
| 43.  | b       |
| 44.  | a       |
| 45.  | a       |

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CONCURS DE ADMITERE
SESIUNEA AUGUST 2018

NECLASIFICAT
Exemplar nr._

PREŞEDINTELE COMISIEI CONCURSULUI
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# TEST GRILĂ DE VERIFICARE A CUNOŞTINŢELOR LA MATEMATICĂ-FIZICĂ
## -PROFILUL SUBOFIŢERI-

### VARIANTA NR. 3

1. Considerând numerele reale a şi b, cu $a+b=12$ şi $a \cdot b = 24$, atunci $\dfrac{1}{a}+\dfrac{1}{b}$ este:

    a. $\dfrac{1}{2}$;

    b. $\dfrac{1}{4}$;

    c. 0;

    d. $-\dfrac{1}{2}$.

2. Să se determine termenul $b_3$ al progresiei geometrice $(b_n)$, dacă $b_1 = \dfrac{3}{2}$ şi $b_2 = 6$.

    a. $a = 32$;

    b. $a = 20$;

    c. $a = 16$;

    d. $a = 24$.

3. Fie funcţia $f : \Re \to \Re$, $f(x) = \begin{cases} 2x^2 - 3, x \in (-\infty, 1] \\ 2, x \in (-1,1) \\ 3x - 6, x \in [1, +\infty) \end{cases}$. Valoarea funcţiei $f(-4)$ este:

    a. 0;

    b. 2;

    c. -18;

    d. 29.

4. După ce a fost scăzut cu 20%, preţul unui produs este 320 lei. Cât costă produsul înainte de reducere?

    a. 600 lei;

    b. 400 lei;

    c. 200 lei;

    d. 800 lei.

5. Soluția inecuației

$-5(x+2)+4(x+3)>0$, pentru $x \in [-1,+\infty)$ este:

    a. $(-\infty,2) \cup [-1,+\infty)$;

    b. $(-\infty,2)$;

    c. $[-1,+\infty)$;

    d. $[-1,2)$.

6. Soluția ecuației $\log_2 x = \log_2(3x-1)$ este:

    a. $x=1$;

    b. $x=\dfrac{1}{4}$;

    c. $x=\dfrac{1}{2}$;

    d. $x=2$.

7. Soluția ecuației $A^2_{x-2} = 42$ este:

    a. $x=9$;

    b. $x=-9$;

    c. $x=3$;

    d. $x=6$.

8. Se dau matricele $A = \begin{pmatrix} 1 & -1 \\ 0 & 2 \end{pmatrix}$ și $B = \begin{pmatrix} 3 & 1 \\ -1 & 4 \end{pmatrix}$. Rezultatul sumei A+B este:

    a. $\begin{pmatrix} 4 & 0 \\ -1 & 6 \end{pmatrix}$;

    b. $\begin{pmatrix} 4 & 0 \\ 1 & -6 \end{pmatrix}$;

    c. $\begin{pmatrix} 1 & -1 \\ -1 & 4 \end{pmatrix}$;

    d. $\begin{pmatrix} 3 & 1 \\ -1 & -6 \end{pmatrix}$.

9. Termenul de rang 10 al progresiei aritmetice 10, 6, 2, -2 ... este:

    a. $a_{10} = 26$;

    b. $a_{10} = -24$;

    c. $a_{10} = -26$;

    d. $a_{10} = 12$.

10. Se consideră mulțimile $A = \{1,3,5,7,9\}$ și $B = \{7,9,11,13\}$. Intersecția celor două mulțimi, $A \cap B$, este:

    a. $\{11,13\}$;

    b. $\{1,3,5\}$;

    c. $\{7,9\}$;

    d. $\{0\}$.

11. Soluția inecuației:

$(1+\sqrt{2})x - \sqrt{8} - 2 \le 0$, este:

    a. $[2,+\infty)$;

    b. $(-\infty,2]$;

    c. $(-2,2]$;

    d. $(-\infty,8)$.

12. Știind că suma a două numere reale este 12, iar produsul acestora este 35, atunci numerele sunt:

    a.  5 și 9;

    b.  3 și 5;

    c.  5 și 7;

    d.  1 și 3.

13. Soluția ecuației

$$\begin{vmatrix} x & -3x \\ 4 & -2 \end{vmatrix} = 20 \text{, este:}$$

    a.  6;

    b.  4;

    c.  2;

    d.  8.

14. Soluția ecuației $A_{x+1}^2 = 30$ este:

    a.  $x = 4$;

    b.  $x = 5$;

    c.  $x = 3$;

    d.  $x = 1$.

15. Soluțiile ecuației logaritmice $\log_4 (4 - x^2) = \log_4 \dfrac{x+8}{3}$ sunt:

    a.  $1$ și $-\dfrac{4}{3}$;

    b.  $0$ și $-\dfrac{3}{4}$;

    c.  $2$ și $\dfrac{3}{5}$;

    d.  $4$ și $-\dfrac{8}{3}$.

16. Legea lui Ohm pentru o porțiune de circuit este dată de relația:

    a.  $I = \dfrac{R}{U}$;

    b.  $I = \dfrac{U}{R}$;

    c.  $I = R \cdot U$;

    d.  $I = \dfrac{U^2}{R}$.

17. Ce lungime are un conductor de cupru ($\rho = 1{,}75 \cdot 10^{-8}\,\Omega \cdot m$) a cărui secțiune este $S = 0{,}35 mm^2$, dacă rezistența sa este $5\Omega$?

    a.  $l = 80 m$;

    b.  $l = 200 m$;

    c.  $l = 100 m$;

    d.  $l = 120 m$.

18. Valoarea echivalentă a doi rezistori cu rezistența de $2\Omega$, respectiv $4\Omega$, conectați în paralel este:

    a. $\dfrac{1}{4}\Omega$;

    b. $\dfrac{3}{4}\Omega$;

    c. $\dfrac{1}{2}\Omega$;

    d. $\dfrac{4}{3}\Omega$.

19. Un galvanometru are rezistența interioară $R = 4,9\Omega$. Deviația maximă de $N = 50$ diviziuni este atinsă atunci când $I_A = 100mA$. Rezistența șuntului la trecerea unui curent $I_1 = 2A$ când acul aparatului indică diviziunea $N_1 = 20$, este:

    a. $1\Omega$;

    b. $0,1\Omega$;

    c. $10\Omega$;

    d. $100\Omega$.

20. Pentru a decola un avion trebuie să atingă viteza $v = 330\,{}^{km}\!/_{h}$. Distanța ce trebuie parcursă pe pistă pentru a atinge această viteză, dacă el rulează cu accelerație constantă $a = 5,5\,{}^{m}\!/_{s^2}$, este:

    a. 763,7 m;

    b. 600,5 m;

    c. 800 m;

    d. 330 m.

21. Un autobuz pornește cu o accelerație constantă $a = 1,5\,{}^{m}\!/_{s^2}$. Distanța parcursă până la momentul în care autobuzul a atins viteza $v = 54\,{}^{km}\!/_{h}$ este:

    a. 95m;

    b. 55m;

    c. 75m;

    d. 85m.

22. Într-o cascadă cu înălțime de 30m, cad 10kg de apă pe secundă. Considerând $g = 9,8\,{}^{m}\!/_{s^2}$, variația energiei cinetice a apei în cădere este:

    a. $\Delta E_c = 4,9 KJ$;

    b. $\Delta E_c = 2,9 KJ$;

    c. $\Delta E_c = 0,9 KJ$;

    d. $\Delta E_c = 5 KJ$.

23. Peste un scripete ideal fix este trecut un fir, la capetele căruia sunt suspendate două corpuri de mase $m_1 = 200g$ și $m_2 = 300g$ (figura de mai jos). Accelerația sistemului și tensiunea din fir, pentru $g = 10\,m/s^2$, sunt:
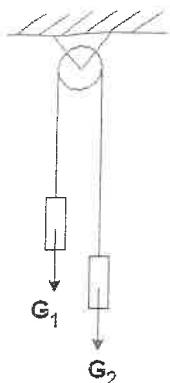


a. $a = 2\,m/s^2$ și $T = 2,4N$;

b. $a = 2,4\,m/s^2$ și $T = 2N$;

c. $a = 4\,m/s^2$ și $T = 4,8N$;

d. $a = 1\,m/s^2$ și $T = 24N$.

24. Legea I a lui Kirchhoff se referă la:
   a. ochiul de rețea;
   b. nodul de rețea;
   c. suma căderilor de tensiune;
   d. tensiunea electromotoare.

25. Valoarea echivalentă a doi rezistori cu rezistența de $2\Omega$, respectiv $4\Omega$, conectați în serie este:
   a. $6\Omega$;
   b. $4\Omega$;
   c. $2\Omega$;
   d. $8\Omega$.

26. Energia electrică consumată de un consumator casnic de $2kW$ timp de o zi este de:
   a. $24\,kWh$;
   b. $48\,kWh$;
   c. $2\,kWh$;
   d. $12\,kWh$.

27. Principiul al doilea al dinamicii este dat de relația matematică:
   a. $\vec{F} = -k \cdot x$;
   b. $\vec{F} = -\mu \cdot \vec{N}$;
   c. $\vec{F} = m \cdot \vec{a}$;
   d. $\vec{F} = m \cdot \vec{v}$.

28. Un mobil se mişcă cu acceleraţia constantă $a = 4\,m/s^2$. La un moment dat are viteza de $20\,m/s$. Cunoscând că mişcarea este încetinită, viteza mobilului după 4 secunde este:

    a. $8\,m/s$;

    b. $4\,m/s$;

    c. $20\,m/s$;

    d. $1\,m/s$.

29. O bară cilindrică de oţel are volumul $V = 36 \cdot 10^{-5}\,m^3$ şi lungimea $l_0 = 0,6m$. Cunoscând modulul lui Young $E = 2,15 \cdot 10^{11}\,N/m^2$ şi alungirea $\Delta l = 0,6mm$, atunci forţa deformatoare este:

    a. $2,15 \cdot 10^3\,N$;

    b. $2,5 \cdot 10^{11}\,N$;

    c. $36 \cdot 10^{-5}\,N$;

    d. $129 \cdot 10^3\,N$.

30. Un tren care se deplasează cu viteza constantă de $70\,km/h$, la apropierea de o gară, frânează cu o acceleraţie de $1\,m/s^2$. Timpul până la oprirea trenului este:

    a. $t = 70s$;

    b. $t = 1,94s$;

    c. $t = 194s$;

    d. $t = 19,4s$.

## GRILA DE CORECTARE
## PENTRU TESTUL GRILĂ DE VERIFICARE A CUNOŞTINŢELOR
## LA MATEMATICĂ-FIZICĂ
### PROFILUL SUBOFIŢERI

## VARIANTA NR. 3

| Nr. item | Răspuns | Nr. item | Răspuns |
|----------|---------|----------|---------|
| 1. | a | 16. | b |
| 2. | d | 17. | c |
| 3. | d | 18. | d |
| 4. | b | 19. | b |
| 5. | d | 20. | a |
| 6. | c | 21. | c |
| 7. | a | 22. | b |
| 8. | a | 23. | a |
| 9. | c | 24. | b |
| 10. | c | 25. | a |
| 11. | b | 26. | b |
| 12. | c | 27. | c |
| 13. | c | 28. | b |
| 14. | b | 29. | d |
| 15. | a | 30. | d |

ROMÂNIA
MINISTERUL APĂRĂRII NAŢIONALE
ŞCOALA MILITARĂ DE MAIŞTRI MILITARI ŞI
SUBOFIŢERI A FORŢELOR AERIENE „TRAIAN VUIA"
CONCURS DE ADMITERE
SESIUNEA AUGUST 2018

NECLASIFICAT
Exemplar unic

PREŞEDINTELE COMISIEI
CONCURSULUI DE ADMITERE

## TEST GRILĂ LA LIMBA ENGLEZĂ
### - PROFILUL SUBOFIŢERI –

### VARIANTA NR. 3

**Partea I: CITIT**

Prince William Arthur Philip Louis was born on the 21st June 1982. He is a very popular member of the Royal Family in England. He is the son of Lady Diana and prince Charles He has got one younger brother – Prince Harry. William looks a lot like his mother . Princess Diana who was very beautiful and modern woman. She liked pop music, romantic novels and charity work. English people loved her. Diana was tragically killed in a car crash in Paris. William was very unhappy. He loved her very much.

Prince William is a very handsome young man. He is a tall, well built man with a beautiful, charming smile. He is very sensitive and romantic. He likes to be active and loves sport, especially swimming, tennis, skiing, rowing, cycling and horse-riding. At the moment he is studying Art History at St. Andrew's University in Scotland. After university prince William is going to join the army or navy.

This is a family tradition. The Prince doesn't want to become king but maybe one day in the future people will call him William III king of England.

1. William is

   a. a king
   b. a prince
   c. a pop star
   d. an actor

2. His brother's name is
   a. Philip
   b. Charles
   c. Harry
   d. Tom

3. His mother
   a. lives in Paris
   b. was a singer
   c. is dead
   d. a star

4. When was Prince William born?
   a. in 1980
   b. in 1987
   c. in 1982
   d. in 1981

5. Now he is studying in
   a. Ireland
   b. Scotland
   c. England
   d. France

6. Where was Diana killed
   a. in Madrid
   b. in London
   c. in Paris
   d. in Rome

7. William likes:
   a. tennis
   b. boxing
   c. football
   d. romantic novels

8. He is:
   a. short
   b. handsome
   c. fat
   d. ugly

9. What is he studying at the moment?
   a. Ancient History
   b. Geography
   c. Biology
   d. Art History

10. Who does he look like?
    a. his brother
    b. his mother
    c. his father
    d. his uncle.

Chelsea is married and has four children. They go to school in London. Her husband is a doctor at the Memorial Hospital. She is a teacher and she loves her pupils. Sometimes she visits her parents in Dublin.

11. The text informs us about Chelsea's…
    a. program
    b. sister
    c. wife
    d. family

Among the countless tourist attractions in contemporary London, such as the Houses of Parliament, Tower Bridge and Buckingam Palace, the one that can easily be considered the unforgettable "Queen" amongst them all, is the Britsh Museum. Britain´s national museum of archaeology and antiquities was established by an act of Parliament in 1753, when the government purchased three large private collections consisting of books, manuscripts, prints, drawings, paintings, medals, coins, seals, cameos and natural curiosities. Today, home of approximately seven million object from all continents, the British museums considered to be the most popular and famous museum in the world.

Located in a central area of London, the British Museum´s collections in archaeology and ethnography are particularly outstanding.

12. The text informs us about:
    a. The Queen of England.
    b. the jewel of the Crown.
    c. Heathrow Airport.
    d. British Museum

13. British Museum
    a. was set up by the Parliament
    b. was founded by a governor in honour of the king
    c. was opened in 1975
    d. was restored

14. The Museum
    a. has three large collections
    b. displays objects from England city
    c. is famus for its seven million pounds worth of objects.
    d. houses artifacts from all over the world

15. What is the author trying to do:
    a. Describe the British Museum.
    b. Sell the British Museum.
    c. Buy the British Museum.
    d. Describe the Tower Bridge.

## PARTEA a II-a: GRAMATICA ȘI VOCABULAR

16. I can see the _____ working on the site .
    a.  mans
    b.  man
    c.  mens
    d.  men

17. They _____ doctors.
    a.  are
    b.  is
    c.  am
    d.  will

18. _____ is snowing.
    a.  There
    b.  He
    c.  It
    d.  Her

19. You _____ smoke in the classroom.
    a.  mustn't
    b.  go
    c.  will go
    d.  went
    e.

20. He _____ play the piano.
    a.  buy
    b.  can
    c.  eat
    d.  go

21. Steve is _____ than Bob.
    a.  tallest
    b.  the most tall
    c.  taller
    d.  more tall

22. Look ! The girl _____ the tree now.
    a.  climbs
    b.  were climbing
    c.  is climbing
    d.  will climb

23. Ana is _____ girl in the world.
   a. the more beautiful
   b. beautifullest
   c. the most beautiful
   d. beautiful

24. After saving the boy, she was considered a.....
   a. hero
   b. heroes
   c. heroines
   d. heroine

25. Let's go _____ a walk in the park.
   a. an
   b. to
   c. at
   d. for

26. The first month of the year is_____.
   a. January
   b. March
   c. June
   d. September

27. Dan likes playing computer...
   a. hard
   b. games
   c. licence
   d. local

28. It is quarter past nine.
   a. 9:25
   b. 9:30
   c. 10:00
   d. 9:15

29. I need to go to the ... to get some vegetables.
   a. chemist's
   b. butcher's
   c. greengrocer's
   d. baker's

30. I go to school by...
    a.  book
    b.  magazine
    c.  bus
    d.  house

31. We have a large house. We sleep in the...
    a.  bath
    b.  bedroom
    c.  hall
    d.  barn

32. Coca Cola is a...
    a.  breakfast
    b.  lemonade
    c.  drink
    d.  coffee

33. John will ... the water.
    a.  drink
    b.  eat
    c.  wash
    d.  write

34. Paris is an expensive...
    a.  house
    b.  country
    c.  city
    d.  drink

35. Football is a.....
    a.  dance
    b.  movie
    c.  sport
    d.  food

## PARTEA a III-a: SCRIS

36. Which is the correct sentence?
    a.  Our motel offers the most modern facilities in the area.
    b.  The area offers the most motel modern facilities.
    c.  The most modern facilities in the our area motel offers.
    d.  In the area most modern facilities offers our motel.

37. How do you finish a formal letter?
    a. I can't wait to hear from you.
    b. I look forward to hearing from you.
    c. Until next time.
    d. I am sorry to hear about your problem.

38. Which is the correct sentence?
    a. Have breakfast people in the morning.
    b. In the morning people breakfast have.
    c. People have breakfast in the morning.
    d. Breakfast people have the in morning.

39. How do you start a formal letter?
    a. Hi! It's been a while…
    b. Forgive me for not writing sooner…
    c. Hello, I've just got your e-mail…
    d. I am writing to inform you …

40. Which is the correct order?
    a. My name is Susan.
    b. Susan name is my.
    c. My Susan name is.
    d. My Susan name is.

41. Which is the correct sentence?
    a. The air pollution is caused by cars and buses.
    b. Air pollution is caused by the cars an buses,
    c. Cars and buses caused by the air pollution is.
    d. The pollution air is caused by cars and buses.

42. To apply for a job you have to:
    a. write a formal letter
    b. write an informal letter
    c. write a love note
    d. do nothing

43. Choose the correct order
    a. Can you haw to find the lab tell me?
    b. Can you tell me the lab how to find?
    c. Can you tell me how to find the lab?
    d. Can you the lab how to find me?

44. Choose the most appropriate line to star a thank you letter:
    a. I want to express my regret for.
    b. I would like to thank you for…
    c. Please, invite me to your party.
    d. What a pity to hear…

45. To write to your boyfriend you have to:
   a. use a magazine.
   b. use an informal language.
   c. use a comic book.
   d. use a formal language.

### GRILA DE CORECTARE
### -TEST GRILĂ LA LIMBA ENGLEZA-
### - PROFILUL SUBOFIȚERI
### VARIANTA NR. 3

| Item | Răspuns |
|------|---------|
| 1. | b |
| 2. | c |
| 3. | c |
| 4. | c |
| 5. | b |
| 6. | c |
| 7. | a |
| 8. | b |
| 9. | d |
| 10. | b |
| 11. | d |
| 12. | d |
| 13. | a |
| 14. | d |
| 15. | a |
| 16. | d |
| 17. | a |
| 18. | c |
| 19. | a |
| 20. | b |
| 21. | c |
| 22. | c |
| 23. | c |
| 24. | d |
| 25. | d |

| Item | Răspuns |
|------|---------|
| 26. | a |
| 27. | b |
| 28. | d |
| 29. | c |
| 30. | c |
| 31. | b |
| 32. | c |
| 33. | a |
| 34. | c |
| 35. | c |
| 36. | a |
| 37. | b |
| 38. | c |
| 39. | d |
| 40. | a |
| 41. | a |
| 42. | a |
| 43. | c |
| 44. | b |
| 45. | b |