LUCRARE SCRISĂ LA LIMBA STRĂINĂ – ENGLEZĂ
VARIANTA II

A. Partea I: CITIT
(Citirea cu atenție)

Choose the correct answer a, b, c, or d.

<u>Raising Houseplants</u>

Raising houseplants involves nearly as much care and knowledge as raising children. First, both plants and children are sensitive to their environments. For example, a plant will grow faster and much healthier if it is raised in an environment of tender, loving care. The same is true for a child, who will be happier and healthier if his parents love and nurture him. Similarly, proper care of houseplants requires a basic knowledge of plants on the part of the owner. He must know, for example, which of his plants need direct sunlight and which need to be kept in shady places, and how much water each plant requires for the best growth and appearance. Parents, too, must have basic knowledge of their children's needs in order to provide what is necessary for their best physical and mental development.

1. We learn from the text that environment …

a	plays an important role in the development of both children and plants.
b	has no effect on plants.
c	has nothing to do with child raising, because most people raise houseplants.
d	is important if the plats are sensitive.

2. The passage informs us that if a person does not have enough knowledge of plants …

a	their growth will be affected negatively.
b	he cannot raise a child.
c	plants should be kept in shady places.
d	they grow faster.

3. The article emphasizes that love and care …

a	are necessary not only for children but also for plants.
b	should only be given to children.
c	are not as essential for children as for plants.
d	will only help raise happier and healthier children.

<u>Dubrovnik</u>

The walls of Dubrovnik are a series of stone walls that have surrounded and protected the citizens of the city-state of Dubrovnik against any hostile forces that may have wished to conquer the citadel. With numerous additions and modifications throughout their history, they have been considered to be among the great fortification systems of the Middle Ages, as they were never breached by a hostile army during this time period. Today's intact city walls, constructed mainly during the 12th-17th centuries, have long been a source of pride for Dubrovnik. The fact that Dubrovnik managed to survive a fifteen month-long invasion by the Saracens in the 9th century proves how well the city was fortified.

4. The text informs us that …

a	the walls of Dubrovnik were protected by foreign citizens.
b	the walls of Dubrovnik were erected to protect the citizens of the citadel.
c	the stone walls were surrounded by fortifying hostile forces.
d	the walls of Dubrovnik were erected to protect enemy forces.

5. We learn from the text that …

a	Dubrovnik capitulated after the invasion of the Saracens.
b	the city was fortified by the hostile armies.
c	the citizens are proud of the modifications made to the walls during the Middle Ages.
d	the people of Dubrovnik are proud that the city walls were never conquered by enemies during the Middle Ages.

(*Citirea selectivă*)

The Empire State Building

The Empire State Building is a 102-story landmark in New York City, the United States. It is 381 meters tall. Its name is derived from the nickname for New York, the Empire State. It stood as the world's tallest building for 40 years, from its completion in 1931 until the construction of the World Trade Center's North Tower was completed in 1972. Following the destruction of the World Trade Center in 2001, the Empire State Building once again became the tallest building in New York City.

The Empire State Building has been named by the American Society of Civil Engineers as one of the Seven Wonders of the Modern World. The building and its street floor interior are designated landmarks of the New York City Landmarks Preservation Commission, and confirmed by the New York City Board of Estimate. It was designated as a National Historic Landmark in 1986. In 2007, it was ranked number one on the List of America's Favorite Architecture.

6. The Empire State Building used to be the world's tallest construction …

a	up to the year of 1986.
b	until 1931.
c	as far as the year of 1972.
d	until 2007.

7. Nowadays, the Empire State Building is the tallest skyscraper in New York due to …

a	the confirmation of the New York City Board of Estimate.
b	the American Society of Civil Engineers.
c	New York City Landmarks Preservation Commission.
d	the demolition of the World Trade Center.

8. The building's characteristics have lead to its inclusion in the …

a	Preservation Commission.
b	List of America's Modern Architecture.
c	Seven Wonders of the Modern World.
d	Board of Estimate.

Venice

Venice is a wonderful city to visit, and there's so much to see and do, hence preparation is the key to having an enjoyable and successful time in Venice. If you come to Venice unprepared you are going to waste time, so hopefully these practical tips on visiting Venice will get your holiday off to a great start!

Situated in the north east of Italy, Venice is easy to get to from the rest of Europe and the world, whether you are coming by air or by water. Water plays an important part in everyday life in Venice, as this amazing city is actually set across 117 islands within the Venetian Lagoon, making getting around the city an interesting and pleasant experience!

The 117 islands are connected by 455 bridges including famous ones like the Bridge of Sighs and Rialto Bridge. Venice's streets were not designed for vehicles and so the city is just a pedestrian zone. This means the only ways to get around Venice are on foot or by canal.

9. What happens if tourists omit to prepare their visit of Venice?

a	They are going to have a memorable time.
b	They risk wasting their time.
c	They are going to receive unpractical tips.
d	They will have a great start.

10. How can international tourists reach Venice?

a	by plane or by ship
b	on foot or by canal
c	in personal cars or motorcycles
d	crossing 117 bridges

11. People usually walk in Venice because….

a	the streets are intersected by bridges.
b	they want to enjoy the buildings.
c	the streets were constructed for pedestrians.
d	they want to avoid busy canals.

The Globe Theater

The Globe Theater was a theater in London associated with William Shakespeare. It was built in 1599 by Shakespeare's playing company, the Lord Chamberlain's Men, and was destroyed by fire on 29 June 1613, during a performance of *Henry the Eighth.* A theatrical gun set off during the performance and misfired, igniting the wooden beams and thatching. According to one of the few surviving documents of the event, no one was hurt except a man whose burning breeches were put out with a bottle of ale.

A second Globe Theater was built on the same site by June 1614 and closed by the Puritans in 1642, like all the other theaters in London.

A modern reconstruction of the Globe, named "Shakespeare's Globe", opened in 1997, approximately 230 meters (750ft) from the site of the original theater.

12. The Globe Theater was constructed by …

a	the Lord Chamberlain.
b	Shakespeare's wooden beams.
c	Shakespeare's playing company.
d	Puritans' companions.

13. Who was hurt during the fire?

a	Everybody
b	No one
c	Some men
d	One man

14. Where was the second Globe Theater built?

a	230 meters from the original one
b	In the same location
c	Near London
d	Close to a Puritan Theater

15. The name of the modern rebuilt theater was …

a	"Shakespeare's Globe"
b	"Shakespeare Globe"
c	"The Globe"
d	"The Globe Theater"

B. Partea a II-a: ELEMENTE DE GRAMATICĂ ȘI VOCABULAR
(*Gramatică*)

Choose the correct answer a, b, c, or d.

16. After the students … their written task, Mr. Williams is going to interview each of them.

a	have completed
b	have been completed
c	are completed
d	completes

17. Everybody agrees that a Formula One car runs … than any other ordinary brand.

a	more faster
b	faster
c	fastly
d	fastlier

18. You need to sharpen your kitchen … . I cannot cut anything with them.

a	knifes
b	knives
c	knife
d	knive

19. If the weather today … so cold, we could go swimming.

a	was
b	had been
c	has not been
d	were not

20. My brother speaks Spanish fluently and so … his children.

a	must
b	may
c	did
d	do

21. The pilot tried to avoid a flock of … flying ahead of his plane.

a	gooses
b	goose
c	geese
d	geeses

22. Professor Smith recommended these two books, but he failed to mention which one is … .

a	worthlier
b	the worthiest
c	worthier
d	the worthliest

23. By the time we arrived home, the guests … .

a	have left
b	left
c	had left
d	had been left

24. My parents were very confident that I … the last year exam.

a	will be passing
b	would pass
c	have passed
d	have been passing

25. In two years from now, I will be … .

a	a university graduate.
b	an university graduate.
c	university graduate.
d	the university graduate.

(Vocabular)

26. … me a favor and stop asking stupid questions!

a	Let
b	Make
c	Provide
d	Do

27. If the doctor suspects any problems with your respiratory system, he will probably check your …

a	kidneys
b	lungs
c	liver
d	tongue

28. The poor lady … off the ladder yesterday and broke her leg.

a	falled
b	felt
c	fell
d	failed

29. The colonel assured the troops that their plan was foolproof.

a	The plan included many mistakes.
b	The plan was for fools.
c	The plan was designed by fools.
d	The plan excluded any mistakes.

30. How would you best describe a sympathetic person?

a	That person is sensible.
b	That person is humorous.
c	That person is compassionate.
d	That person is smart.

31. I do not know how old he is, but I've heard that he is in his late thirties.

a	The man is about 34-36 years old.
b	The man is exactly 30 years old.
c	The man is about 37-39 years old.
d	The man was born in the 1930s.

32. Anyone looking for a job is required to fill in ……..

a	a job description
b	an application form
c	a familiar document
d	an academic course

33. The song brings back pleasant memories. It….. me the time when I was in love.

a	repels
b	remembers
c	relieves
d	recalls

34. If the request of the police officer is to produce identification, you'll have to ……

a	indicate details about criminal records.
b	identify people who disobey laws.
c	provide him with your mail address.
d	show him your passport.

35. I dread going to the clinic tomorrow.

a	I can't wait to go.
b	I look forward to going.
c	I anticipate going.
d	I hate going.

C. Partea a III-a: SCRIS

36. Which is the most suitable sentence to start a formal apology letter?

a	I apologize for the misplacement of your order.
b	I'm terribly surprised that I misplaced your order.
c	I feel like hell for misplacing your order
d	I apologize for being so foolish and misplacing your order.

37. Which is the most appropriate ending to a formal letter?

a	I'm looking forward to the decision about the decision.
b	I look forward to hearing your decision about the position.
c	Looking up for your decision about the position.
d	Looking about your final decision about the position.

38. Which is the best way to end an informal letter?

a	Yours sympathetically, John
b	With sympathy, John
c	Loads of love and hugs, John
d	With love and friends, John

39. Which is the most appropriate opening to an informal letter?

a	Hello Mister!
b	What's on!
c	What's up!
d	Hello Sir!

40. Which is the most suitable sentence to be included in an application?

a	I am hopeful that my qualifications will be considered by your company.
b	I hope that I clarified my strongest qualities.
c	I'm confident that no other candidate has my qualifications.
d	I hope that it is clear why I choose to work for you.

41. Which is the correct order?

a	I want to speak fluently English really.
b	I want to speak English fluently really.
c	I fluently really want to speak English.
d	I really want to speak English fluently.

42. Which is the correct order?

a	Sally took to "The Bricot" for lunch the auditors.
b	Sally took the auditors to "The Bricot" for lunch.
c	Sally took for lunch the auditors to "The Bricot".
d	Sally took "The Bricot" to the auditors for lunch.

43. Which is the correct order?

a	He has been since February 1997 in working California.
b	He has been in California since February 1997 working.
c	He has been working in California since February 1997.
d	He has since February 1997 been working in California.

44. Which is the correct order?

a	I always have to remind her to send in the figures.
b	I have always to remind her to send the in figures.
c	I have to remind her to send always in the figures.
d	Always I have to remind her to send in the figures.

45. Which is the correct order?

a	I would never have agreed to that if I'd known.
b	I would have agreed never to that if I'd known.
c	I would have agreed to that if I'd known never.
d	If I'd known would I have agreed to that never.

BAREM DE EVALUARE ŞI APRECIERE A TESTULUI GRILĂ LA ENGLEZĂ
VARIANTA II

1	a	16	a	31	c
2	a	17	b	32	b
3	a	18	b	33	d
4	b	19	d	34	d
5	d	20	d	35	d
6	c	21	c	36	a
7	d	22	c	37	b
8	c	23	c	38	c
9	b	24	b	39	c
10	a	25	a	40	a
11	c	26	d	41	d
12	c	27	b	42	b
13	d	28	c	43	c
14	b	29	d	44	a
15	a	30	c	45	a

LUCRARE SCRISĂ LA PSIHOLOGIE
VARIANTA II

Notă: Cele 30 de întrebări tip grilă pot avea unul, mai multe sau toate răspunsurile corecte.

1. Cea mai puternică adaptare senzorială are loc la nivelul analizatorului:
   a. olfactiv;
   b. vizual;
   c. auditiv.

2. Orice proces perceptiv presupune:
   a. interpretare;
   b. detecție;
   c. discriminare;
   d. identificare.

3. Reprezentările chinestezice constau în:
   a. imagini mintale ale propriilor mişcări;
   b. reproducerea zgomotelor;
   c. reproducerea unei melodii.

4. Scopul gândirii este acela de a găsi soluții la problemele cu care ne confruntăm. Ce caracteristică a gândirii reflectă acest enunț?
   a. caracterul mijlocit;
   b. caracterul formal;
   c. caracterul finalist.

5. Psihologia studiază operațiile gândirii ca:
   a. instrumente psihice dobândite;
   b. cupluri operatorii ce se completează reciproc;
   c. fenomene psihice primare;
   d. ierarhizări generale.

6. Funcția persuasivă a limbajului constă în:
   a. substituirea unor obiecte, fenomene, relații prin formule verbale sau alte semne;
   b. inducerea la o altă persoană a unor stări emoționale;
   c. inducerea la o altă persoană a unor idei.

7. Formarea şi consolidarea limbajului intern ating nivelul optim la vârsta de:
   a. 14 – 16 ani;
   b. 7 ani;
   c. 10 ani.

8. Memoria este un proces psihic uman prin caracterul său:
   a. creativ;
   b. logic;
   c. conştient;
   d. mijlocit.

9. Memorarea logică este superioară memorării mecanice prin:
   a. similaritate;
   b. economicitate;
   c. productivitate;
   d. autenticitate.

10. Care dintre calitățile imaginației stau la baza potențialului ei creativ?
   a. prelucrează materialul cognitiv divers;
   b. valorifică toate combinațiile;
   c. este susținută de procese afectiv-motivaționale.

11. Metoda de grup elaborată de W. Gordon, care stimulează imaginația creatoare, se numeşte:
   a. sociogramă;
   b. sinestezie;
   c. sociomatrice;
   d. sinectica.

12. Care dintre următoarele stări motivaționale nu sunt înnăscute?
    a. trebuințele sexuale;
    b. trebuința de foame;
    c. trebuințele materiale.

13. Motivația cognitivă își are originea în:
    a. nevoia de a cunoaște;
    b. nevoia de a se simți bine în compania altora;
    c. nevoia de a explica;
    d. nevoia de a obține aprobarea din partea celorlalți;
    e. nevoia de a fi stimulat senzorial.

14. Demnitatea face parte din categoria sentimentelor:
    a. estetice;
    b. intelectuale;
    c. psihosociale.

15. Din categoria proceselor afective primare fac parte:
    a. tonul afectiv al proceselor cognitive;
    b. afectele;
    c. emoțiile curente.

16. Voința, ca formă de autoreglare a conduitei, este:
    a. conștientă;
    b. inconștientă.

17. Răbdarea, tenacitatea și rezistența la eșec reflectă:
    a. independența;
    b. puterea voinței;
    c. curajul;
    d. perseverența.

18. Care dintre formele atenției se identifică cu reflexul de orientare?
    a. atenția voluntară;
    b. atenția involuntară;
    c. atenția postvoluntară.

19. Atenția este:
    a. proces psihic cognitiv;
    b. condiție facilitatoare a activităților psihice.

20. Latura dinamico-energetică a personalității este:
    a. caracterul;
    b. aptitudinile;
    c. temperamentul.

21. Nivelul de dezvoltare a aptitudinilor poate fi evaluat după:
    a. eficiență;
    b. sensibilitate;
    c. originalitate;
    d. volum.

22. Structura psihologică a atitudinii cuprinde:
    a. elemente cognitive;
    b. elemente afectiv – motivaționale;
    c. elemente volitive.

23. Inteligența este:
    a. un proces de adaptare prin asimilare și prelucrare a informațiilor;
    b. aptitudine ce constă în structuri operaționale care, prin calitățile lor, asigură eficiența conduitei.

24. Fazele procesului creativ sunt:
a. documentarea şi experimentarea;
b. gestaţia;
c. iluminarea – apariţia soluţiei;
d. formularea intenţiei şi împărtăşirea ei;
e. elaborarea finală a soluţiei.
25. Zgomotul produs de decolarea unui avion determină:
a. diminuarea sensibilităţii bastonaşelor cu 20%;
b. apariţia senzaţiilor olfactive.
26. Problema crucială a adolescenţei constă în:
a. însuşirea strategiilor de învăţare;
b. perfecţionarea proceselor cognitive;
c. definirea identităţii.
27. Lipsa relaţiilor sociale satisfăcătoare, sau a relaţiilor intime, este definită ca:
a. singurătate interpersonală;
b. singurătate existenţială.
28. Comportamentele antisociale pot fi:
a. intenţionate;
b. patologice.
29. ”Criza de originalitate” se manifestă în:
a. copilărie;
b. adolescenţă;
c. pubertate;
d. tinereţe.
30. Animismul, specific vârstelor mici, constă în:
a. nediferenţierea eu – lume;
b. curiozitate;
c. însufleţirea obiectelor.

BAREM DE EVALUARE ŞI APRECIERE A TESTULUI GRILĂ LA PSIHOLOGIE
VARIANTA II

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

1. Se consideră ecuația irațională $\sqrt{\dfrac{x+9}{x}} + \sqrt{\dfrac{x}{x+9}} = 2,05$. Suma rădăcinilor ecuației este:

   a) 16; **b)** –9; **c)** – 25; **d)** 3; **e)** 17.

2. Suma rădăcinilor ecuației $\left(\sqrt{2-\sqrt{3}}\right)^x + \left(\sqrt{2+\sqrt{3}}\right)^x = 4$ este:

   a) 3; **b)** 4; **c)** 0; **d)** 7; **e)** 6.

3. Mulțimea soluțiilor inecuației $\left(\dfrac{2}{3}\right)^{\log_{0,3}\left(\frac{2x+1}{2x-3}\right)} < 1$ este:

   a) $x \in \left(\dfrac{3}{2}, +\infty\right)$; **b)** $x \in \left(-\infty, -\dfrac{1}{2}\right) \cup \left(\dfrac{3}{2}, +\infty\right)$; **c)** $x \in \left(-\infty, -\dfrac{1}{2}\right)$; **d)** $x \in \left(0, \dfrac{3}{2}\right)$;

   e) $x \in \left(-\dfrac{1}{2}, \dfrac{3}{2}\right)$.

4. Valoarea expresiei $E(a,b) = (\log_a b + \log_b a + 2)(\log_a b - \log_{ab} b)\log_b a - 1$ este:

   a) b; **b)** $\log_b a$; **c)** 1; **d)** a; **e)** $\log_a b$.

5. Punctul $A(3,1)$ este vârful unui pătrat căruia îi cunoaștem ecuația unei diagonale, $y - x = 0$. Aria pătratului este:

   a) $8\sqrt{2}$; **b)** $4\sqrt{2}$; **c)** 8; **d)** 4; **e)** $2\sqrt{2}$.

6. Valorile parametrului $m \in R$ pentru care matricea $A = \begin{pmatrix} 2 & x & 3 \\ m & x-1 & 1 \\ 1 & 1 & x \end{pmatrix}$ este inversabilă pentru orice

   $x \in R$ sunt:

   a) $m \in \left(\dfrac{2}{3}, 1\right)$; **b)** $m \in \left(-\infty, \dfrac{2}{3}\right)$; **c)** $m \in (1, +\infty)$; **d)** $m \in \left[\dfrac{2}{3}, 1\right]$; **e)** $m \in \left(1, \dfrac{3}{2}\right)$.

7. Valorile lui $m \in R$ pentru care sistemul: $\begin{cases} mx + y + z = 0 \\ x + my + z = 0 \\ x + y + mz = 0 \end{cases}$ este compatibil simplu nedeterminat sunt:

   a) $m \in \{-2\}$; **b)** $m \in \{-1\}$; **c)** $m \in \{1\}$; **d)** $m \in \{-1; 1\}$; **e)** $m \in \phi$.

8. Se dă ecuația $x^4 - 10x^3 + 36x^2 + 4mx - 3n = 0$ unde $m, n \in R$. Valorile parametrilor m, n pentru care ecuația admite o rădăcină triplă mai mică decât 3 sunt:

   a) $m = -\dfrac{32}{3},\ n = -14$; **b)** $m = -14,\ n = -\dfrac{32}{3}$; **c)** $m = -10,\ n = -\dfrac{32}{3}$;

   d) $m = -24,\ n = -16$; **e)** $m = -10,\ n = -\dfrac{9}{4}$.

9. Valorile parametrilor m, n pentru care polinomul $f = x^6 + mx^5 + nx^2 + 4$ se divide cu $g = x^2 - 1$ sunt:

   a) $m = -5,\ n = 0$; **b)** $m = 4,\ n = 6$; **c)** $m = 0,\ n = 5$; **d)** $m = 2,\ n = 3$; **e)** $m = 0,\ n = -5$.

10. Dacă ecuația $x^3 - 12x^2 + mx - 28 = 0$ are rădăcinile în progresie aritmetică atunci m are valoarea:
   a) $m = -39$;   **b)** $m = 39$; **c)** $m = 27$;   **d)** $m = 29$;   **e)** $m = 19$.

11. Să se determine $m, n \in R$ dacă ecuația $x^4 - 2x^3 + 4x^2 + 2mx - n = 0$ are rădăcina $x_1 = 1 + i$, unde $i = \sqrt{-1}$.
   a) $m = -2$, $n = -4$;   **b)** $m = -3$, $n = 4$;   **c)** $m = -4$, $n = -5$;   **d)** $m = -4$, $n = 4$;
   e) $m = -4$, $n = -2$.

12. Valoarea integralei definite $\int\limits_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin x \cos^2 x \, dx$ este:

   a) 2;   **b)** 1;   **c)** 0;   **d)** 3;   **e)** $\dfrac{\pi}{4}$.

13. Limita $E = \lim\limits_{x \to \frac{\pi}{2}} \dfrac{\ln(1 + 2\cos x)}{\cos x}$ are valoarea:
   a) 0;   **b)** 1;   **c)** –2;   **d)** 2;   **e)** e.

14. Fie funcția $f(x) = a \ln(x) + bx^2 + x$ care are extreme în $x = 1$ și $x = 2$. Atunci a și b sunt:
   a) $a = 2$, $b = 3$;   **b)** $a = -2$, $b = -3$;   **c)** $a = -2$, $b = 3$;   **d)** $a = -\dfrac{2}{3}$, $b = -\dfrac{1}{6}$;

   e) $a = \dfrac{12}{5}2$, $b = -\dfrac{5}{2}$.

15. Aria suprafeței plane cuprinse între curbele $y = x^2$ și $y^2 = x$ este:
   a) 3;   **b)** $\dfrac{2}{3}$;   **c)** $\dfrac{4}{3}$;   **d)** 1;   **e)** $\dfrac{1}{3}$.

BAREM DE EVALUARE ŞI APRECIERE A TESTULUI GRILĂ LA MATEMATICĂ
VARIANTA II/A

1	b
2	c
3	c
4	e
5	d
6	a
7	a
8	b
9	e
10	b
11	a
12	c
13	d
14	d
15	e

LUCRARE SCRISĂ LA MATEMATICĂ
VARIANTA II/**B**

1. Se consideră ecuația irațională $\sqrt{\dfrac{x+9}{x}} + \sqrt{\dfrac{x}{x+9}} = 2,05$. Suma rădăcinilor ecuației este:

   a) -25;   **b)** 16;   **c)** -9;   **d)** 3;   **e)** 17.

2. Suma rădăcinilor ecuației $\left(\sqrt{2-\sqrt{3}}\right)^x + \left(\sqrt{2+\sqrt{3}}\right)^x = 4$ este:

   a) 0;   **b)** 4;   **c)** 3;   **d)** 7;   **e)** 6.

3. Mulțimea soluțiilor inecuației $\left(\dfrac{\mathbf{2}}{\mathbf{3}}\right)^{\log_{0,3}\left(\frac{2x+1}{2x-3}\right)} < 1$ este:

   a) $x \in \left(-\infty, -\dfrac{1}{2}\right)$;   **b)** $x \in \left(-\infty, -\dfrac{1}{2}\right) \cup \left(\dfrac{3}{2}, +\infty\right)$;   **c)** $x \in \left(\dfrac{3}{2}, +\infty\right)$;   **d)** $x \in \left(0, \dfrac{3}{2}\right)$;

   e) $x \in \left(-\dfrac{1}{2}, \dfrac{3}{2}\right)$.

4. Valoarea expresiei $E(a,b) = (\log_a b + \log_b a + 2)(\log_a b - \log_{ab} b)\log_b a - 1$ este:

   a) $\log_b a$;   **b)** $\log_a b$;   **c)** 1;   **d)** a;   **e)** b.

5. Punctul $A(3,1)$ este vârful unui pătrat căruia îi cunoaștem ecuația unei diagonale, $y - x = 0$. Aria pătratului este:

   a) $2\sqrt{2}$;   **b)** $4\sqrt{2}$;   **c)** 8;   **d)** $8\sqrt{2}$;   **e)** 4.

6. Valorile parametrului $m \in R$ pentru care matricea $A = \begin{pmatrix} 2 & x & 3 \\ m & x-1 & 1 \\ 1 & 1 & x \end{pmatrix}$ este inversabilă pentru orice

   $x \in R$ sunt:

   a) $m \in \left[\dfrac{2}{3}, 1\right]$;   **b)** $m \in \left(-\infty, \dfrac{2}{3}\right)$;   **c)** $m \in (1, +\infty)$;   **d)** $m \in \left(\dfrac{2}{3}, 1\right)$;   **e)** $m \in \left(1, \dfrac{3}{2}\right)$.

7. Valorile lui $m \in R$ pentru care sistemul: $\begin{cases} mx + y + z = 0 \\ x + my + z = 0 \\ x + y + mz = 0 \end{cases}$ este compatibil simplu nedeterminat sunt:

   a) $m \in \{-1; 1\}$;   **b)** $m \in \{-1\}$;   **c)** $m \in \{1\}$;   **d)** $m \in \{-2\}$;   **e)** $m \in \phi$.

8. Se dă ecuația $x^4 - 10x^3 + 36x^2 + 4mx - 3n = 0$ unde $m, n \in R$. Valorile parametrilor m, n pentru care ecuația admite o rădăcină triplă mai mică decât 3 sunt:

   a) $m = -10, n = -\dfrac{32}{3}$;   **b)** $m = -\dfrac{32}{3}, n = -14$;   **c)** $m = -14, n = -\dfrac{32}{3}$;

   d) $m = -24, n = -16$;   **e)** $m = -10, n = -\dfrac{9}{4}$.

9. Valorile parametrilor m, n pentru care polinomul $f = x^6 + mx^5 + nx^2 + 4$ se divide cu $g = x^2 - 1$ sunt:

   a) $m = 4, n = 6$;   **b)** $m = 0, n = -5$;   **c)** $m = 0, n = 5$;   **d)** $m = 2, n = 3$;   **e)** $m = -5, n = 0$.

10. Dacă ecuația $x^3 - 12x^2 + mx - 28 = 0$ are rădăcinile în progresie aritmetică atunci m are valoarea:
   a) $m = 27$;   **b)** $m = -39$;   **c)** $m = 39$;   **d)** $m = 29$;   **e)** $m = 19$.

11. Să se determine $m, n \in R$ dacă ecuația $x^4 - 2x^3 + 4x^2 + 2mx - n = 0$ are rădăcina $x_1 = 1 + i$, unde $i = \sqrt{-1}$.
   a) $m = -4,\ n = -2$;   **b)** $m = -3,\ n = 4$;   **c)** $m = -4,\ n = -5$;   **d)** $m = -4,\ n = 4$;
   e) $m = -2,\ n = -4$.

12. Valoarea integralei definite $\int\limits_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin x \cos^2 x\, dx$ este:

   a) $\dfrac{\pi}{4}$;   **b)** 1;   **c)** 2;   **d)** 3;   **e)** 0.

13. Limita $E = \lim\limits_{x \to \frac{\pi}{2}} \dfrac{\ln(1 + 2\cos x)}{\cos x}$ are valoarea:
   a) 1;   **b)** 2;   **c)** -2;   **d)** 0;   **e)** e.

14. Fie funcția $f(x) = a\ln(x) + bx^2 + x$ care are extreme în $x = 1$ și $x = 2$. Atunci a și b sunt:
   a) $a = -\dfrac{2}{3},\ b = -\dfrac{1}{6}$;   **b)** $a = -2,\ b = -3$;   **c)** $a = -2,\ b = 3$;   **d)** $a = 2,\ b = 3$;
   e) $a = \dfrac{12}{5}2,\ b = -\dfrac{5}{2}$.

15. Aria suprafeței plane cuprinse între curbele $y = x^2$ și $y^2 = x$ este:
   a) 1;   **b)** $\dfrac{2}{3}$;   **c)** $\dfrac{4}{3}$;   **d)** $\dfrac{1}{3}$;   **e)** 3.

BAREM DE EVALUARE ŞI APRECIERE A TESTULUI GRILĂ LA MATEMATICĂ
VARIANTA II/B

1	c
2	a
3	a
4	b
5	e
6	d
7	d
8	c
9	b
10	c
11	e
12	e
13	b
14	a
15	d

LUCRARE SCRISĂ LA MATEMATICĂ
VARIANTA II/C

1. Se consideră ecuația irațională $\sqrt{\dfrac{x+9}{x}} + \sqrt{\dfrac{x}{x+9}} = 2,05$. Suma rădăcinilor ecuației este:

   a) 3;   **b)** 16;   **c)** -25;   **d)** -9;   **e)** 17.

2. Suma rădăcinilor ecuației $\left(\sqrt{2-\sqrt{3}}\right)^x + \left(\sqrt{2+\sqrt{3}}\right)^x = 4$ este:

   a) 4;   **b)** 0;   **c)** 3;   **d)** 7;   **e)** 6.

3. Mulțimea soluțiilor inecuației $\left(\dfrac{2}{3}\right)^{\log_{0,3}\left(\frac{2x+1}{2x-3}\right)} < 1$ este:

   a) $x \in \left(-\infty, -\dfrac{1}{2}\right) \cup \left(\dfrac{3}{2}, +\infty\right)$;   **b)** $x \in \left(-\infty, -\dfrac{1}{2}\right)$;   **c)** $x \in \left(\dfrac{3}{2}, +\infty\right)$;   **d)** $x \in \left(0, \dfrac{3}{2}\right)$;

   e) $x \in \left(-\dfrac{1}{2}, \dfrac{3}{2}\right)$.

4. Valoarea expresiei $E(a,b) = (\log_a b + \log_b a + 2)(\log_a b - \log_{ab} b)\log_b a - 1$ este:

   a) 1;   **b)** $\log_b a$;   **c)** $\log_a b$;   **d)** a;   **e)** b.

5. Punctul $A(3,1)$ este vârful unui pătrat căruia îi cunoaștem ecuația unei diagonale, $y - x = 0$. Aria pătratului este:

   a) 4;   **b)** $4\sqrt{2}$;   **c)** 8;   **d)** $8\sqrt{2}$;   **e)** $2\sqrt{2}$.

6. Valorile parametrului $m \in R$ pentru care matricea $A = \begin{pmatrix} 2 & x & 3 \\ m & x-1 & 1 \\ 1 & 1 & x \end{pmatrix}$ este inversabilă pentru orice $x \in R$ sunt:

   a) $m \in \left(1, \dfrac{3}{2}\right)$;   **b)** $m \in \left(-\infty, \dfrac{2}{3}\right)$;   **c)** $m \in (1, +\infty)$;   **d)** $m \in \left[\dfrac{2}{3}, 1\right]$;   **e)** $m \in \left(\dfrac{2}{3}, 1\right)$.

7. Valorile lui $m \in R$ pentru care sistemul: $\begin{cases} mx + y + z = 0 \\ x + my + z = 0 \\ x + y + mz = 0 \end{cases}$ este compatibil simplu nedeterminat sunt:

   a) $m \in \{1\}$;   **b)** $m \in \{-1\}$;   **c)** $m \in \{-2\}$;   **d)** $m \in \{-1;1\}$;   **e)** $m \in \phi$.

8. Se dă ecuația $x^4 - 10x^3 + 36x^2 + 4mx - 3n = 0$ unde $m, n \in R$. Valorile parametrilor m, n pentru care ecuația admite o rădăcină triplă mai mică decât 3 sunt:

   a) $m = -24$, $n = -16$;   **b)** $m = -\dfrac{32}{3}$, $n = -14$;   **c)** $m = -10$, $n = -\dfrac{32}{3}$;

   d) $m = -14$, $n = -\dfrac{32}{3}$;   **e)** $m = -10$, $n = -\dfrac{9}{4}$.

9. Valorile parametrilor m, n pentru care polinomul $f = x^6 + mx^5 + nx^2 + 4$ se divide cu $g = x^2 - 1$ sunt:

   a) $m = 0$, $n = -5$;   **b)** $m = 4$, $n = 6$;   **c)** $m = 0$, $n = 5$;   **d)** $m = 2$, $n = 3$;   **e)** $m = -5$, $n = 0$.

10. Dacă ecuația $x^3 - 12x^2 + mx - 28 = 0$ are rădăcinile în progresie aritmetică atunci m are valoarea:

    a) $m = 29$;   **b)** $m = -39$;   **c)** $m = 27$;   **d)** $m = 39$;   **e)** $m = 19$.

11. Să se determine $m, n \in R$ dacă ecuația $x^4 - 2x^3 + 4x^2 + 2mx - n = 0$ are rădăcina $x_1 = 1 + i$, unde $i = \sqrt{-1}$.

    a) $m = -3, \ n = 4$;   **b)** $m = -2, \ n = -4$;   **c)** $m = -4, \ n = -5$;   **d)** $m = -4, \ n = 4$;

    e) $m = -4, \ n = -2$.

12. Valoarea integralei definite $\displaystyle\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin x \cos^2 x \, dx$ este:

    a) 0;   **b)** 1;   **c)** 2;   **d)** 3;   **e)** $\dfrac{\pi}{4}$.

13. Limita $E = \lim\limits_{x \to \frac{\pi}{2}} \dfrac{\ln(1 + 2\cos x)}{\cos x}$ are valoarea:

    a) e;   **b)** 1;   **c)** -2;   **d)** 0;   **e)** 2.

14. Fie funcția $f(x) = a \ln(x) + bx^2 + x$ care are extreme în $x = 1$ și $x = 2$. Atunci a și b sunt:

    a) $a = \dfrac{12}{5}2, \ b = -\dfrac{5}{2}$;   **b)** $a = -2, \ b = -3$;   **c)** $a = -2, \ b = 3$;   **d)** $a = 2, \ b = 3$;

    e) $a = -\dfrac{2}{3}, \ b = -\dfrac{1}{6}$.

15. Aria suprafeței plane cuprinse între curbele $y = x^2$ și $y^2 = x$ este:

    a) $\dfrac{4}{3}$;   **b)** $\dfrac{2}{3}$;   **c)** $\dfrac{1}{3}$;   **d)** 1;   **e)** 3.

BAREM DE EVALUARE ŞI APRECIERE A TESTULUI GRILĂ LA MATEMATICĂ
VARIANTA II/C

1	d
2	b
3	b
4	c
5	a
6	e
7	c
8	d
9	a
10	d
11	b
12	a
13	e
14	e
15	c

LUCRARE SCRISĂ LA MATEMATICĂ
VARIANTA II/**D**

1. Se consideră ecuația irațională $\sqrt{\dfrac{x+9}{x}}+\sqrt{\dfrac{x}{x+9}}=2,05$. Suma rădăcinilor ecuației este:

   a) 17;   **b)** 16;   **c)** -25;   **d)** 3;   **e)** -9.

2. Suma rădăcinilor ecuației $\left(\sqrt{2-\sqrt{3}}\right)^{x}+\left(\sqrt{2+\sqrt{3}}\right)^{x}=4$ este:

   a) 7;   **b)** 4;   **c)** 3;   **d)** 0;   **e)** 6.

3. Mulțimea soluțiilor inecuației $\left(\dfrac{\mathbf{2}}{\mathbf{3}}\right)^{\log_{0,3}\left(\frac{2x+1}{2x-3}\right)}<1$ este:

   a) $x\in\left(0,\dfrac{3}{2}\right)$;   **b)** $x\in\left(-\infty,-\dfrac{1}{2}\right)\cup\left(\dfrac{3}{2},+\infty\right)$;   **c)** $x\in\left(\dfrac{3}{2},+\infty\right)$;   **d)** $x\in\left(-\infty,-\dfrac{1}{2}\right)$;

   e) $x\in\left(-\dfrac{1}{2},\dfrac{3}{2}\right)$.

4. Valoarea expresiei $E(a,b)=\left(\log_a b+\log_b a+2\right)\left(\log_a b-\log_{ab} b\right)\log_b a-1$ este:

   a) $\log_a b$;   **b)** $\log_b a$;   **c)** 1;   **d)** a;   **e)** b.

5. Punctul $A(3,1)$ este vârful unui pătrat căruia îi cunoaștem ecuația unei diagonale, $y-x=0$. Aria pătratului este:

   a) $4\sqrt{2}$;   **b)** 4;   **c)** 8;   **d)** $8\sqrt{2}$;   **e)** $2\sqrt{2}$.

6. Valorile parametrului $m\in R$ pentru care matricea $A=\begin{pmatrix} 2 & x & 3 \\ m & x-1 & 1 \\ 1 & 1 & x \end{pmatrix}$ este inversabilă pentru orice $x\in R$ sunt:

   a) $m\in(1,+\infty)$;   **b)** $m\in\left(-\infty,\dfrac{2}{3}\right)$;   **c)** $m\in\left(\dfrac{2}{3},1\right)$;   **d)** $m\in\left[\dfrac{2}{3},1\right]$;   **e)** $m\in\left(1,\dfrac{3}{2}\right)$.

7. Valorile lui $m\in R$ pentru care sistemul: $\begin{cases} mx+y+z=0 \\ x+my+z=0 \\ x+y+mz=0 \end{cases}$ este compatibil simplu nedeterminat sunt:

   a) $m\in\phi$;   **b)** $m\in\{-1\}$;   **c)** $m\in\{1\}$;   **d)** $m\in\{-1;1\}$;   **e)** $m\in\{-2\}$.

8. Se dă ecuația $x^4-10x^3+36x^2+4mx-3n=0$ unde $m,n\in R$. Valorile parametrilor m, n pentru care ecuația admite o rădăcină triplă mai mică decât 3 sunt:

   a) $m=-10,\ n=-\dfrac{9}{4}$;   **b)** $m=-\dfrac{32}{3},\ n=-14$;   **c)** $m=-10,\ n=-\dfrac{32}{3}$;

   d) $m=-24,\ n=-16$;   **e)** $m=-14,\ n=-\dfrac{32}{3}$.

9. Valorile parametrilor m, n pentru care polinomul $f=x^6+mx^5+nx^2+4$ se divide cu $g=x^2-1$ sunt:

   a) $m=0,\ n=5$;   **b)** $m=4,\ n=6$;   **c)** $m=0,\ n=-5$;   **d)** $m=2,\ n=3$;   **e)** $m=-5,\ n=0$.

10. Dacă ecuația $x^3 - 12x^2 + mx - 28 = 0$ are rădăcinile în progresie aritmetică atunci m are valoarea:
    a) $m = 39$; **b)** $m = -39$; **c)** $m = 27$; **d)** $m = 29$; **e)** $m = 19$.

11. Să se determine $m, n \in R$ dacă ecuația $x^4 - 2x^3 + 4x^2 + 2mx - n = 0$ are rădăcina $x_1 = 1 + i$, unde $i = \sqrt{-1}$.
    a) $m = -4$, $n = -5$; **b)** $m = -3$, $n = 4$; **c)** $m = -2$, $n = -4$; **d)** $m = -4$, $n = 4$;
    e) $m = -4$, $n = -2$.

12. Valoarea integralei definite $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin x \cos^2 x \, dx$ este:

    a) 3; **b)** 1; **c)** 2; **d)** 0; **e)** $\frac{\pi}{4}$.

13. Limita $E = \lim\limits_{x \to \frac{\pi}{2}} \dfrac{\ln(1 + 2\cos x)}{\cos x}$ are valoarea:
    a) 2; **b)** 1; **c)** –2; **d)** 0; **e)** e.

14. Fie funcția $f(x) = a\ln(x) + bx^2 + x$ care are extreme în $x = 1$ și $x = 2$. Atunci a și b sunt:
    a) $a = -2$, $b = -3$; **b)** $a = -\dfrac{2}{3}$, $b = -\dfrac{1}{6}$; **c)** $a = -2$, $b = 3$; **d)**
    $a = 2$, $b = 3$;
    e) $a = \dfrac{12}{5}2$, $b = -\dfrac{5}{2}$.

15. Aria suprafeței plane cuprinse între curbele $y = x^2$ și $y^2 = x$ este:
    a) $\dfrac{2}{3}$; **b)** $\dfrac{1}{3}$; **c)** $\dfrac{4}{3}$; **d)** 1; **e)** 3.

BAREM DE EVALUARE ŞI APRECIERE A TESTULUI GRILĂ LA MATEMATICĂ
VARIANTA II/D

1	e
2	d
3	d
4	a
5	b
6	c
7	e
8	e
9	c
10	a
11	c
12	d
13	a
14	b
15	b