PROVE UFFICIALI DEGLI ANNI PASSATI

IMAT 2026

A B C D E

FAC-SIMILE DA SVOLGERE

Risposte in ordine casuale e foglio delle risposte

ALLENATI SULL'APP TESTBUDDY

TESTBUDDY.IT

WHAT'S IN THIS DOCUMENT

Prova di ammissione IMAT 2026, pubblicata dal Ministero dell'Università e della Ricerca (accessoprogrammato.mur.gov.it). Versioni, soluzioni e commenti di TestBuddy, che non è collegata al Ministero.

- The questions laid out by TestBuddy, with the answers in random order
- The answer sheet
- The answer key

Reading skills and knowledge acquired during studies	1 questions
Questions	43 questions
Logical reasoning and problem-solving	5 questions
Biology	1 questions
Chemistry	6 questions
Physics and Mathematics	4 questions
Total	**60 questions**

HOW TO USE IT

1 · TIMED

Give yourself about a minute and a half per question, no notes, as in the exam.

2 · CHECK

Mark the wrong answers and read why each one is wrong, not only the right one.

3 · REVIEW

Go back to the topics where you made most mistakes and redo the questions in the app.

READING SKILLS AND KNOWLEDGE ACQUIRED DURING STUDIES

1

Fake news is not a new problem in communication. Deceptive communication has always existed: after the first sin recounted in the Bible, Adam and Eve clumsily try to hide their transgression from God; soon afterwards, Cain once again tries to deceive God about the murder of his brother Abel. The insightful scholar Gregory Bateson (1972; Italian trans. 1976, pp. 160–161) observed that animals communicate with a naturalness and innocence that human beings have lost, since human behaviour "is corrupted by deceit — even self-deceit — by purpose, and by self-consciousness." The capacity to lie is therefore bound up with the superior cognitive abilities of human beings and presupposes a high degree of awareness and reflexivity. This makes human communication immensely richer and more multifaceted than animal communication, but at the same time more demanding, opaque, duplicitous, and exposed to the risk of domination and deception.

Tracing back through the history of fake news, the historian Robert Darnton (2017) assembled a selection of cases ranging from the early Middle Ages to eighteenth-century France, among which the malicious rumours that shaped the reputation and fate of Queen Marie Antoinette are particularly striking. Again with reference to France, the historian of the Revolution Georges Lefebvre devoted a famous book to the phenomenon of the "Great Fear", which spread with lightning speed through certain rural regions in the summer of 1789 on the basis of unchecked rumours about an aristocratic conspiracy, an imminent foreign invasion, and bands of brigands who were killing people and destroying crops; these rumours led the peasants to arm themselves and rise up against the aristocracy (1932).

But all ages have had their share of fake news, including important cases, such as the forged Donation of Constantine, a medieval apocryphal document used to legitimise the temporal power of the Church and only debunked many centuries later, in 1517, by the humanist Lorenzo Valla on the basis of its historical and linguistic inconsistencies.

Translated from G. Gili e G. Maddalena, Post-verità e fake news: radici, significati attuali, inattesi protagonisti e probabili vittime, in Media Education. Studi, ricerche e buone pratiche, 9 (2018), pp. 1-16

According to the text, the phenomenon of fake news:

- **A** Is due to the human capacity to always distinguish the truth
- **B** Is the result of a historical process that began in the Middle Ages
- **C** Has deep historical roots, but technically began in 1789
- **D** Acquired a different role in the modern age, because only in the modern age have people come to understand that human beings and animals are distinct
- **E** Has always existed, albeit in different forms

QUESTIONS

2 **Read the text and answer the question only on the basis of the information it contains explicitly or implicitly and not on what you already know about the topic.**
Why is it that we worship sacrifice in a mother? Where did this inhuman idea of maternal self-immolation come from? From mother to daughter, for centuries, servitude has been handed on. It is a monstrous chain. At some point in life, all of us become conscious of all that the woman who bore us did for our sake; and with that consciousness comes the remorse of not having adequately repaid her total sacrifice. Then we lavish upon our children all that we did not give our mothers, denying ourselves and offering a fresh example of mortification, of self-annihilation. If only, once and for all, that fatal chain were broken, and a mother did not suppress the woman within herself, and a child were to behold in her an example of dignity. Then one would begin to understand that the duty of parents begins long before the birth of their children, and that their responsibility must be felt beforehand, precisely at that moment when selfish life presses most imperiously, most seductively.
Translated from S. Aleramo, Una Donna, Feltrinelli, Milano, 2002
In which of the following does Aleramo identify the reason why mothers' self-sacrifice is perpetuated?

- A From one generation to the next, women hand down a condition of servitude associated with motherhood
- B From one generation to the next, children learn from their mothers an example of dignity
- C From one generation to the next, parental responsibility, especially that of mothers, begins before a child is born
- D From one generation to the next, a condition is handed down that leads daughters to rebel against their mothers
- E From one generation to the next, women deny their own children and offer an example of mortification

3 **Read the text and answer the question only on the basis of the information it contains explicitly or implicitly and not on what you already know about the topic.**
"[...] The enduring European pre-eminence of Italian literature has coincided with its ability to act as a crossroads of cultures. We forget this too often, just as we forget the fact that the very first book printed in Arabic type was produced not in Syria or Egypt, but in Rome in 1514. [...] It is the cities that have been the pivot around which the history of our country has turned, and not only its literary history. If books are readily written in villas, it is in the bustle of urban centres that people meet and ideas spread."
Translated from Luzzatto, Pedullà, Atlante della letteratura italiana, Introduzione, Einaudi, Torino, 2010-2012
The polycentric character of Italian culture is primarily due to:

- A the flourishing of cities, where people meet and books are written
- B The flourishing of cities, where people meet and ideas spread.
- C the spread of ideas between town and countryside
- D the possibility of writing in peace in order to sustain literary life in the cities
- E both the flourishing of cities and the tranquillity of villas outside the city

4 **The economic system in which digital technologies, the Internet and ICT (nformation and Communication Technologies) are central to production, distribution and exchange is commonly referred to as:**

A The mobile systems economy
B The big data economy
C The technological economy
D The global economy
E The digital economy

LOGICAL REASONING AND PROBLEM-SOLVING

5 **In the sequence $1, 2, 5, x, 29, 70, 169, \ldots$, what is the value of x?**

- A 24
- B 16
- C 12
- D 11
- E 8

6 **Which of the following is a true logical proposition?**

- A A square has three diagonals
- B A pentagon has six diagonals
- C A triangle has two diagonals
- D A hexagon has nine diagonals
- E An octagon has eighteen diagonals

7 **If $s = 3t$ and $t = 9u$ then:**

- A $u = s/27$
- B $s = 3u$
- C $u = 27s$
- D $t = 27s$
- E $s = 18u$

8 **20% of a company's employees work part-time. The rest work full-time. At the end of the year, 20% of the full-time employees receive a bonus. If 48 employees received the bonus, how many employees does the company have?**

- A 300
- B 96
- C 150
- D 600
- E 1200

9 **Based on the statements:**
“Some felines are carnivores. Carnivores eat meat.”
Which of the following statements is correct?

A Meat is the favourite food of animals
B Some animals are carnivores
C Animals cannot survive without meat
D Not all animals eat meat
E All animals eat meat

BIOLOGY

10 **What is the main function of red blood cells in the blood?**

A To transport CO_2 to the liver

B To regulate body temperature

C To fight infections

D To clot the blood

E To transport oxygen to the tissues

QUESTIONS

11 **Which structure of the respiratory system is the primary site of gas exchange?**

A Aorta
B Alveoli
C Left atrium of the heart
D Diaphragm
E Trachea

12 **What is the primary function of flagella in prokaryotic cells?**

A To aid in cell division
B To transport materials within the cell
C To allow the cell to move
D To facilitate the exchange of genetic material between cells
E To help the cell adhere to other cells

13 **What is the primary digestive function of the stomach?**

A To transport food to the large intestine
B To produce bile
C To absorb nutrients
D To filter toxins
E To break down food using enzymes and acids

14 **What is the primary site of protein translation in prokaryotic cells?**

A Between the plasma membrane and the cell wall
B In the nucleus
C On ribosomes in the cytoplasm
D On the plasma membrane
E In the flagellum

15 **Which main components make up the plasma membrane?**

A RNA and amino acids
B Carbohydrates and DNA
C Phospholipids and proteins
D Fatty acids and sugars
E Lipids and glycogen

16 **What is the primary function of channel proteins in the cell membrane?**

A To store energy for active transport
B To transfer DNA out of the cell
C To regulate membrane fluidity
D To permit specific substances to pass through the membrane
E To catalyse protein synthesis

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17 **What is the primary function of a tendon?**

A To connect muscles to bones
B To protect the heart
C To control the production of actin
D To transmit nervous impulses to the muscle
E To store energy for the muscle

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18 **Restriction enzymes are:**

A Oxidoreductases
B Ligases
C Endonucleases
D Isomerases
E Transferases

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19 **A bacterium is said to be transformed when:**

A It is able to grow under anaerobic conditions
B It has taken up foreign DNA directly from the environment
C It undergoes gene mutations caused by mutagens
D It has a cell wall similar to that of plant cells
E It is engulfed by a macrophage through phagocytosis

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20 **The epiglottis is primarily composed of:**

A A vertebra
B A gland
C Cartilage
D A muscle
E A nerve

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21 **Which hormone primarily stimulates uterine contractions during labour?**

A Insulin
B Oxytocin
C Thyrotropin
D Luteinising hormone
E Follicle-stimulating hormone

22 **What is the primary role of carbohydrates in cellular catabolism?**

A They are converted into fats for storage
B They are broken down to produce energy for cellular activities
C They are used exclusively for protein synthesis
D They are not involved in energy metabolism
E They are used only as an energy reserve

23 **Which of the following statements about metabolism is true?**

A It focuses only on the synthesis of molecules
B It is a process that occurs only in animal cells
C It occurs only in the presence of sunlight
D It does not involve chemical reactions
E It includes both catabolism and anabolism

24 **What is the main function of enzymes in metabolic reactions?**

A To be consumed during the process
B To speed up reactions without being consumed
C To provide chemical energy for the reactions
D To increase the reaction temperature
E To be transformed into substrates

25 **Photosynthesis takes place in which cell organelle?**

A Mitochondrion
B Ribosome
C Nucleus
D Endoplasmic reticulum
E Chloroplast

26 **Which organelles are the main site of cellular respiration in eukaryotic cells?**

A Chloroplasts
B Ribosomes
C Lysosomes
D Endoplasmic reticulum
E Mitochondria

27 **Which of the following features distinguishes meiosis from mitosis?**

A It requires the use of microtubules
B It occurs only in unicellular organisms
C It occurs in somatic cells
D The production of genetically diverse haploid cells
E The production of cells is identical to the parent cell

28 **Which of the following statements about the chromosomal theory of inheritance is true?**

A Chromosomes do not contain genes
B Genes are found only in RNA
C Genes are independent of chromosomes
D Chromosome segregation does not occur during meiosis
E Genes are located on chromosomes

29 **Which technique was used by Rosalind Franklin to obtain images of DNA?**

A Electron microscopy
B X-ray crystallography
C Chromatography
D Magnetic resonance imaging
E Electrophoresis

30 **Which of the following statements correctly describes the structure of DNA?**

A It has no hydrogen bonds between the bases
B It has a double-stranded helical structure.
C It consists of a single chain of nucleotides
D It contains only two nitrogenous bases
E It is made up of three nucleotide strands

31 **Which of the following statements about the haemoglobin in patients with sickle-cell anaemia is true?**

A Their haemoglobin has a different structure from normal haemoglobin
B Their haemoglobin does not undergo mutations
C Their haemoglobin is produced in greater quantities
D Their haemoglobin does not transport oxygen
E Their haemoglobin is identical to that found in all individuals

32 **Which of the following statements about the structure of messenger RNA is true?**

A mRNA does not carry information for protein synthesis
B mRNA consists of two polynucleotide strands
C mRNA is longer than DNA
D mRNA contains the nitrogenous base thymine
E mRNA consists of a single polynucleotide strand

CHEMISTRY

33 **Which of the following statements about the Mg^{2+} ion is correct?**

- A The Mg^{2+} ion has a larger radius than the Mg atom
- B None of the other statements is correct
- C The ion has two more electrons than the neutral atom
- D The ion has 8 electrons in its outermost electron shell
- E The two chemical species (the ion and the neutral atom) have the same number of protons, electrons, and neutrons

34 **Balance the following reaction equation: $Cu + HNO_3 \rightarrow Cu(NO_3)_2 + NO + H_2O$**

- A 3, 8, 3, 2, 4
- B 3, 8, 3, 2, 6
- C 3, 8, 3, 1, 4
- D None of the other options is correct
- E 2, 6, 3, 2, 4

35 **The rate law for the reaction $A + B \rightarrow C$ is:**

- A $v = k[A][B]$
- B $v = k[C]$
- C To be determined experimentally
- D $v = k[A][B]/[C]$
- E $v = k[C]/([A][B])$

36 **How many valence electrons does the Cl^- anion have?**

- A 6
- B 8
- C 7
- D 35
- E 17

37 **When sodium bromide is dissolved in water, the result is:**

- A A strongly basic aqueous solution
- B A weakly acidic aqueous solution
- C A strongly acidic aqueous solution
- D A weakly basic aqueous solution
- E A neutral aqueous solution

38 **When sodium acetate is dissolved in water, the result is:**

A A basic aqueous solution
B No solution is formed because it does not dissolve
C An acidic aqueous solution
D An alcoholic solution
E A neutral aqueous solution

QUESTIONS

39 **Balance the following redox equation:** $PbBr_2 + FeBr_3 \rightarrow PbBr_4 + FeBr_2$

A $PbBr_2 + 3\ FeBr_3 \rightarrow PbBr_4 + 3\ FeBr_2$
B $2\ PbBr_2 + 3\ FeBr_3 \rightarrow 2\ PbBr_4 + 3\ FeBr_2$
C $2\ PbBr_2 + FeBr_3 \rightarrow 2\ PbBr_4 + FeBr_2$
D $PbBr_2 + 2\ FeBr_3 \rightarrow PbBr_4 + 2\ FeBr_2$
E $3\ PbBr_2 + FeBr_3 \rightarrow 3\ PbBr_4 + FeBr_2$

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40 **Balance the following disproportionation reaction:** $KIO_2 \rightleftharpoons KI + KIO_3$

A $3\ KIO_2 \rightleftharpoons 2\ KI + KIO_3$
B $4\ KIO_2 \rightleftharpoons 2\ KI + KIO_3$
C $3\ KIO_2 \rightleftharpoons KI + 2\ KIO_3$
D $5\ KIO_2 \rightleftharpoons 3\ KI + 2\ KIO_3$
E $4\ KIO_2 \rightleftharpoons 3\ KI + KIO_3$

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41 **HClO is:**

A An acidic hydroxide
B A hydrohalic acid
C An acid anhydride
D An acidic oxide
E An oxyacid

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42 **Substance A has a higher boiling point than Substance B if:**

A The intermolecular forces in A are stronger than those in B
B The intramolecular forces in A are weaker than those in B
C The intermolecular forces in A are weaker than those in B
D The intramolecular forces in A are stronger than those in B
E The intramolecular forces in A are stronger than those in B, but the intermolecular forces in A are weaker than those in B

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43 **Pentanones are:**

A Carboxylic acids
B Hydroxyketones
C Ketones
D Alcohols
E Lactones

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44 **Ethene is:**

A An alkyne
B A diene
C An alkenyne
D A non-existent molecule
E An alkene

---

45 C_3H_6O **can be:**

A An alcohol, an aldehyde, or a ketone
B An alcohol or a ketone, but not an aldehyde
C An alcohol or an aldehyde, but not a ketone
D An alcohol, but neither an aldehyde nor a ketone
E An aldehyde or a ketone, but not an alcohol

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46 **For an ideal gas undergoing an isothermal process, what happens as the volume increases?**

A The pressure increases in direct proportion
B The temperature increases
C The pressure remains unchanged
D The pressure decreases in inverse proportion
E The pressure decreases in direct proportion

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47 **In an exothermic reaction:**

A The reaction rate is always very high
B The reactants have lower chemical potential energy than the products
C The products have lower chemical potential energy than the reactants
D The products have the same chemical potential energy as the reactants
E Heat is absorbed from the surroundings

PHYSICS AND MATHEMATICS

48 **Which physical quantity measures how quickly a point particle changes its position over time?**

- A Natural angular frequency
- B Velocity
- C Frequency
- D Acceleration
- E Centripetal acceleration

49 **In which case of relative motion between two observers are Galilean transformations valid?**

- A Uniform rectilinear motion of one observer relative to the other
- B Non-uniform rectilinear motion of one observer relative to the other
- C Combined rotational and translational motion of one observer relative to the other
- D Uniformly accelerated rectilinear motion of one observer relative to the other
- E Rotational motion of one observer relative to the other at constant angular velocity

50 **What is the kinetic energy of an object of mass 20 kg moving at 36 km/h?**

- A 1000 J
- B 2500 J
- C 200 J
- D 2000 J
- E 720 J

51 **If a point particle slides down an inclined plane with friction, its mechanical energy:**

- A decreases
- B increases
- C becomes zero
- D remains constant
- E doubles

QUESTIONS

52 **To what depth must one dive in the sea for the pressure to double relative to that at the surface?**

A Approximately 2m
B Approximately 10m
C Approximately 15m
D Approximately 5m
E Approximately 20m

53 **What is the electric charge of a hydrogen atom?**

A +1 nC
B −2 pC
C +1 mC
D +2 nC
E 0 C

54 **Two waves are said to be coherent if:**

A they have the same intensity
B they have the same amplitude
C their phase difference remains constant over time
D the phase difference varies randomly over time
E their wavelength lies in the visible region

55 **Which is the solution to the inequality $x^2 - 6x + 5 \leq 0$?**

A $-5 \leq x \leq -1$
B $x \leq 1\,; x \geq 5$
C None of the other options are correct
D $1 \leq x \leq 5$
E $x \leq -5\,; x \geq -1$

56 **Given $f(x) = e^x$, which of the following gives the solutions to the inequality $f(x) > 0$?**

A No real numbers
B All real numbers
C All real numbers greater than 1
D All real numbers greater than or equal to 1
E All positive real numbers

57 **A circle has the equation $x^2 + y^2 + 5x + 4y = 0$. Which of the following statements is true?**

A It has its centre at the origin
B It has zero radius
C It is centred on the x-axis
D It is centred on the y-axis
E It passes through the origin

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58 **A bag contains 12 balls that are indistinguishable by touch, 5 of which are red. Two balls are drawn without replacement. What is the probability that no red ball is drawn?**

A $\frac{15}{22}$
B $\frac{49}{132}$
C $\frac{25}{132}$
D $\frac{7}{22}$
E $\frac{49}{144}$

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59 **The parabola with equation $y = kx^2 - x + 30$ passes through the point (5,0). What is the value of k?**

A 1
B 3
C 2
D −2
E −1

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60 **Which is the solution to the following equation: $log_{10}x = 6$?**

A 10000
B 60
C 600
D 100000
E 1000000

ANSWER SHEET

Fill in one box per question, as in the exam. The key is on the next page.

1	A B C D E	21	A B C D E	41	A B C D E
2	A B C D E	22	A B C D E	42	A B C D E
3	A B C D E	23	A B C D E	43	A B C D E
4	A B C D E	24	A B C D E	44	A B C D E
5	A B C D E	25	A B C D E	45	A B C D E
6	A B C D E	26	A B C D E	46	A B C D E
7	A B C D E	27	A B C D E	47	A B C D E
8	A B C D E	28	A B C D E	48	A B C D E
9	A B C D E	29	A B C D E	49	A B C D E
10	A B C D E	30	A B C D E	50	A B C D E
11	A B C D E	31	A B C D E	51	A B C D E
12	A B C D E	32	A B C D E	52	A B C D E
13	A B C D E	33	A B C D E	53	A B C D E
14	A B C D E	34	A B C D E	54	A B C D E
15	A B C D E	35	A B C D E	55	A B C D E
16	A B C D E	36	A B C D E	56	A B C D E
17	A B C D E	37	A B C D E	57	A B C D E
18	A B C D E	38	A B C D E	58	A B C D E
19	A B C D E	39	A B C D E	59	A B C D E
20	A B C D E	40	A B C D E	60	A B C D E

ANSWER KEY

Valid for this TestBuddy version: the answers are in a different order from the official paper.

1	E	21	B	41	E
2	A	22	B	42	A
3	B	23	E	43	C
4	E	24	B	44	E
5	C	25	E	45	A
6	D	26	E	46	D
7	A	27	D	47	C
8	A	28	E	48	B
9	B	29	B	49	A
10	E	30	B	50	A
11	B	31	A	51	A
12	C	32	E	52	B
13	E	33	D	53	E
14	C	34	A	54	C
15	C	35	C	55	D
16	D	36	B	56	B
17	A	37	E	57	E
18	C	38	A	58	D
19	B	39	D	59	E
20	C	40	C	60	E

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