

# IMAT

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International Medical Admissions Test①

FOR DEGREE COURSE IN INTERNATIONAL  
MEDICINE&SURGERY

The total number of questions is 60 and the duration is 100 minutes.

The scoring will be grades out of 90 Points.

The correct answers will be multiplied by +1.5 and the wrong ones by -0.4.

**2025-26 Academic year**

### Reading Skills and Knowledge Acquired During Studies

1. Who is the author of the novel "Pride and Prejudice" ?

- A) George Eliot
- B) Jane Austen
- C) Virginia Woolf
- D) Mary Shelley
- E) Emily Brontë

2. From the text below, which of the following cannot be inferred?

The development of astronomy can be traced back to early civilizations that used the stars and planets for practical purposes, such as tracking time and navigating. It was not until the Greek civilization that astronomy began to emerge as a theoretical science focused on understanding the cosmos in a systematic and abstract manner.

- A) Early astronomy was mainly practical in its applications.
- B) Greek civilization introduced theoretical approaches to astronomy.
- C) The Greeks were the first to observe stars and planets.
- D) Astronomy became more abstract during Greek civilization.
- E) Early societies relied on astronomy for time-keeping and navigation.

3. In which of the following sentences is the verb in the passive voice?

- A) The discoveries of Galileo were celebrated by the scientific community.
- B) Many students study mathematics in high school.
- C) Newton formulated the laws of motion.
- D) Ancient philosophers discussed the nature of existence.
- E) Aristotle taught at the Lyceum in Athens.

4. The American Civil War was primarily a conflict between which of the following groups?

- A) The Union and the Confederacy
- B) England and the United States
- C) The United States and Mexico
- D) The British and French settlers
- E) Spain and the Native American tribes

Logical Reasoning and Problem-Solving

5. A library contains 60,000 books. Out of these, 45% are fiction, 30% are non-fiction, and the remaining books are reference materials. How many reference books are in the library?

- A) 18,000
- B) 15,000
- C) 12,000
- D) 9,000
- E) 6,000

6. In a chemistry experiment, you have a compound containing two volatile substances. Substance A has a half-life of 2 hours, while substance B has a half-life of 3 hours. You initially have a mixture where the mass ratio of A to B is 8:1. After 6 hours, what will be the new mass ratio of A to B?

- A) 2:1
- B) 1:1
- C) 4:1
- D) 16:1
- E) 32:1

7. A shop offers a discount of 20% on all items and an additional 5% discount for loyalty card holders. If a customer with a loyalty card buys an item originally priced at \$200, what is the final price?

- A) \$150
- B) \$152
- C) \$152.50
- D) \$160
- E) \$140

8. A recent study surveyed 200 high school students and found that those who regularly listened to music while studying achieved higher scores on math tests compared to those who studied in silence. Based on this finding, the researchers concluded that listening to music directly enhances mathematical ability and suggested that students incorporate music into their study routines to improve their academic performance. The study further claims that the effect of music on mathematical ability applies universally, regardless of the type of music or individual differences among students. The researchers also pointed out that the results were consistent across multiple testing sessions, reinforcing their conclusion that music is a key factor in boosting academic success. As a result, they recommend schools encourage students to listen to music while studying to enhance their overall academic performance.

Which of the following identifies a flaw in the reasoning of the paragraph?

- A) The study assumes that the sample of students tested is representative of all students.
- B) The study does not take into account whether students who listened to music were naturally better at math.
- C) The study does not clarify what type of music was listened to by the students.
- D) The study assumes that all students would benefit equally from listening to music.
- E) The study fails to explain why students perform better on math tests while listening to music.

9. "Whenever it rains, Emma brings an umbrella."

Which of the following statements can be deduced from this proposition?

- A) Emma did not bring an umbrella, so it did not rain.
- B) It rained, but Emma did not bring an umbrella.
- C) Emma brought an umbrella, so it rained.
- D) It did not rain, so Emma did not bring an umbrella.
- E) Emma brought an umbrella, so it did not rain.

### Biology

10. Which process is primarily responsible for the production of ATP in the mitochondria?

- A) Oxidative phosphorylation
- B) Glycolysis
- C) Light-dependent reactions
- D) Anaerobic fermentation
- E) Protein synthesis

11. Which of the following best describes the role of hydrogen bonds in the structure of proteins?

- A) They link amino acids together in the primary structure.
- B) They stabilize the helical and sheet structures in the secondary structure.
- C) They form between the phosphate groups in the backbone.
- D) They are responsible for forming the peptide bonds between amino acids.
- E) They hold the two strands of DNA together.

12. Where in the cell do the light-independent reactions of photosynthesis occur?

- A) In the stroma of the chloroplast
- B) In the thylakoid membrane
- C) In the mitochondrial matrix
- D) In the cytoplasm
- E) On the rough endoplasmic reticulum

13. Which of the following is a polysaccharide found in the cell walls of plants?

- A) Cellulose
- B) Glucose
- C) Ribose
- D) Sucrose
- E) Glycogen

14. What is the function of ribose in RNA?

- A) It forms part of the RNA backbone.
- B) It catalyzes the synthesis of amino acids.
- C) It links to DNA in double-stranded RNA.
- D) It is a component of the nuclear membrane.
- E) It forms the structure of ribosomes.

15. Which of the following best describes an aquaporin?

- A) A protein channel that facilitates the movement of water across cell membranes.
- B) A protein that transports glucose in the bloodstream.
- C) An enzyme that breaks down proteins in the stomach.
- D) A lipid that stabilizes membrane fluidity.
- E) A molecule that binds with oxygen in red blood cells.

16. Which part of the nephron is primarily responsible for reabsorbing water from the filtrate?

- A) Loop of Henle
- B) Glomerulus
- C) Bowman's capsule
- D) Proximal tubule
- E) Collecting duct

17. Which type of reaction is involved in linking two amino acids together?

- A) Condensation
- B) Hydrolysis
- C) Reduction
- D) Oxidation
- E) Phosphorylation

18. Which of the following structures is unique to eukaryotic cells and aids in packaging DNA?

- A) Nucleus
- B) Nucleolus
- C) Ribosome
- D) Capsule
- E) Plasmid

19. Which structure plays a key role in cell division by organizing microtubules?

- A) Centrosome
- B) Lysosome
- C) Golgi apparatus
- D) Mitochondria
- E) Chloroplast

20. Which of the following best describes the structure of the Golgi apparatus?

- A) A series of flattened, membrane-bound sacs
- B) A double-layered membrane with embedded ribosomes
- C) A spherical structure containing digestive enzymes
- D) A single membrane with channels for water transport
- E) A network of protein filaments in the cytoplasm



21. Which part of the autonomic nervous system is responsible for the "fight or flight" response?

- A) Sympathetic nervous system
- B) Parasympathetic nervous system
- C) Enteric nervous system
- D) Somatic nervous system
- E) Central nervous system

22. Which of the following molecules helps to stabilize cell membranes in animals?

- A) Cholesterol
- B) Starch
- C) Hemoglobin
- D) DNA
- E) Cellulose

23. Which of the following processes involves the correct folding and quality control of newly synthesized proteins?

- A) Endoplasmic reticulum-associated degradation (ERAD)
- B) Protein phosphorylation
- C) Ribosomal assembly
- D) DNA replication
- E) Exocytosis

24. What is the main function of the rough endoplasmic reticulum in cells?

- A) Protein synthesis and folding
- B) ATP production
- C) Lipid storage
- D) DNA replication
- E) Genetic information storage

25. Which type of transport across the cell membrane involves the movement of molecules against their concentration gradient and requires ATP?

- A) Active transport
- B) Facilitated diffusion
- C) Simple diffusion
- D) Osmosis
- E) Passive transport

26. Which term describes a different version of a gene found at the same locus on homologous chromosomes?

- A) Allele
- B) Chromatid
- C) Phenotype
- D) Nucleotide
- E) Codon

27. In a genetic cross, which type of allele can mask the effect of another allele at the same locus?

- A) Dominant
- B) Recessive
- C) Codominant
- D) Linked
- E) Epistatic

28. Which of the following best defines genetic recombination?

- A) The exchange of genetic material between homologous chromosomes during meiosis
- B) The production of identical copies of DNA
- C) The transcription of DNA into RNA
- D) The mutation of genes over generations
- E) The transfer of DNA between different species

29. Which component of the cytoskeleton is responsible for cell movement and contraction?

- A) Actin filaments
- B) Microtubules
- C) Centrioles
- D) Nucleosomes
- E) Ribosomes

30. In a molecule of mRNA, which sequence would be complementary to the DNA strand with the sequence TACGGA?

- A) AUGCCU
- B) ATCGGT
- C) TGCATT
- D) TACCGT
- E) UACGGA

31. During transcription in eukaryotic cells, which enzyme is responsible for synthesizing RNA from the DNA template?

- A) RNA polymerase
- B) DNA polymerase
- C) Helicase
- D) Ligase
- E) Topoisomerase

32. Which of the following best describes the function of a promoter region in DNA?

- A) It codes for the start of the protein synthesis.
- B) It signals where RNA polymerase should begin transcription.
- C) It binds ribosomes to initiate translation.
- D) It terminates the transcription process.
- E) It stabilizes the DNA double helix.

## Chemistry

33. Which of the following oxides will produce an acidic solution when dissolved in water?

- A) CaO
- B) SO<sub>2</sub>
- C) Na<sub>2</sub>O
- D) MgO
- E) ZnO

34. When moving from left to right across a period in the periodic table, which of the following correctly describes the general trends in atomic radius and electronegativity?

- A) Atomic radius decreases, and electronegativity decreases.
- B) Atomic radius increases, and electronegativity decreases.
- C) Atomic radius decreases, and electronegativity increases.
- D) Atomic radius increases, and electronegativity increases.
- E) Atomic radius does not change, and electronegativity increases.

35. In the reaction  $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4\text{Cl}$ , ammonia (NH<sub>3</sub>) acts as a:

- A) Lewis base
- B) Brønsted base
- C) Brønsted acid
- D) Lewis acid
- E) Arrhenius base

36. How many moles of  $\text{Cl}^-$  ions are present in 200 mL of a 1.5 M solution of  $\text{MgCl}_2$ ?

- A) 0.3 mol
- B) 0.6 mol
- C) 0.4 mol
- D) 1.2 mol
- E) 0.5 mol

37. How many molecules of oxygen gas ( $\text{O}_2$ ) are present in a 1.6 g sample of oxygen, given that the molar mass of oxygen is 32 g/mol?

- A)  $1.51 \times 10^{22}$
- B)  $3.01 \times 10^{22}$
- C)  $3.01 \times 10^{21}$
- D)  $6.02 \times 10^{21}$
- E)  $4.51 \times 10^{22}$

38. A mixture of 0.6 mol of  $\text{N}_2$ , 0.4 mol of  $\text{CO}_2$ , and 0.8 mol of  $\text{O}_2$  exerts a pressure of 2.4 atm on the walls of the vessel that contains it. What is the pressure exerted by the nitrogen?

- A) 0.6 atm
- B) 0.8 atm
- C) 0.5 atm
- D) 0.3 atm
- E) 0.75 atm

39. How much water needs to be added to 2 mL of an HCl solution with a pH of 1 to obtain a solution with a pH of 3?

- A) 198 mL
- B) 100 mL
- C) 98 mL
- D) 20 mL
- E) 10 mL

40. When 8 g of hydrogen reacts with 64 g of oxygen, assuming 75% yield, what is the mass of water produced?

- A) 18 g
- B) 54 g
- C) 36 g
- D) 48 g
- E) 60 g

41. A gas, confined in a rigid cylinder and maintained at a temperature of  $-3^{\circ}\text{C}$  exerts a pressure of 9 atm. What pressure would the same gas exert if it were heated to  $27^{\circ}\text{C}$ ?

- A) 10 atm
- B) -81 atm
- C) 8.1 atm
- D) 9.6 atm
- E) 12.5 atm

42. When copper metal reacts with dilute nitric acid, nitrogen monoxide and copper(II) nitrate are produced. Which substance is the oxidizing agent?

- A)  $\text{HNO}_3$
- B)  $\text{Cu}$
- C)  $\text{NO}$
- D)  $\text{Cu}(\text{NO}_3)_2$
- E)  $\text{H}_2\text{O}$

43. Which of the following hydrocarbons has the fewest hydrogen atoms?

- A) Propane
- B) Ethene
- C) Cyclopropane
- D) Ethyne
- E) Butane

44. How many mL of water must be added to 10 mL of a 0.5 M HCl solution to obtain a 0.1 M solution?

- A) 40 mL
- B) 50 mL
- C) 60 mL
- D) 30 mL
- E) 25 mL



45. A carbon-carbon double bond is NOT present in which of the following molecules?

- A) Ethene
- B) Propene
- C) Butane
- D) 2-butene
- E) Hexene

46. Given the reaction  $2 \text{ Al} + 3 \text{ Cl}_2 \rightarrow 2 \text{ AlCl}_3$ , which of the following statements is correct?

- A) 3 mol of  $\text{Cl}_2$  are needed to produce 1 mol of  $\text{AlCl}_3$ .
- B) 2 mol of Al and 3 mol of  $\text{Cl}_2$  produce 3 mol of  $\text{AlCl}_3$ .
- C) 1 mol of Al and 1.5 mol of  $\text{Cl}_2$  produce 2 mol of  $\text{AlCl}_3$ .
- D) 2 mol of Al are needed to react with 3 mol of  $\text{Cl}_2$ .
- E) 4 mol of  $\text{AlCl}_3$  can be produced from 1 mol of Al and 2 mol of  $\text{Cl}_2$ .

47. According to the Brønsted–Lowry theory:

- A) A strong base forms a conjugate with a weak acid
- B) The conjugate acid is the species formed when a base gains a proton
- C) The conjugate base is the species formed when a base gains an  $\text{OH}^-$  ion
- D) A base is a compound that can donate  $\text{H}^+$  ions
- E) An acid is a substance that can accept an electron pair

Math and Physics

48. A car is moving at a constant speed  $v$ . If a braking force of 150 N is applied for a distance of 10 m, what is the work done by the braking force?

- A) 1500 J
- B) 15 J
- C) 1050 J
- D) 15000 J
- E) 210 J

49. If  $f(x) = \log_3(x^2 + 5)$ , what is the reciprocal of  $f(1)$ ?

- A)  $\frac{1}{2}$
- B)  $\frac{1}{\log_3(6)}$
- C)  $\frac{1}{3}$
- D) 2
- E)  $\frac{1}{6}$

50. In a box, there are 5 blue, 4 red, and 3 yellow balls. Two balls are drawn one after the other, without replacement. What is the probability of drawing a blue ball followed by a red ball?

A)  $\frac{1}{5}$

B)  $\frac{5}{33}$

C)  $\frac{5}{33}$

D)  $\frac{1}{3}$

E)  $\frac{5}{12}$

51. Emma derives a formula:

$$Q = \frac{(X+Y)^2 A}{3B}$$

She doubles the values of X and Y, halves the value of A and triples the value of B. What will change in the value of Q?

A) Decreases by  $\frac{1}{3}$

B) Increases by  $\frac{1}{3}$

C) Decreases by  $\frac{2}{3}$

D) Increases by  $\frac{2}{3}$

E) Increases by  $\frac{4}{3}$

52. Let the  $f(x) = 3x^2 - 2$  and  $g(x) = x + 2$

Evaluate  $f(g(3))$ .

- A) 89
- B) 108
- C) 54
- D) 73
- E) 27

53. A cone has a base radius of 4 cm and a height of 9 cm. What is the volume of the cone?

- A)  $48\pi \text{ cm}^3$
- B)  $120\pi \text{ cm}^3$
- C)  $150\pi \text{ cm}^3$
- D)  $160\pi \text{ cm}^3$
- E)  $180\pi \text{ cm}^3$

54. Given that  $x = 4 \times 10^5$  and  $y = 8 \times 10^4$ , what is the value of  $\frac{x^2}{x-y}$ ?

- A)  $5 \times 10^2$
- B)  $5 \times 10^1$
- C)  $5 \times 10^5$
- D)  $2.5 \times 10^5$
- E)  $2.5 \times 10^1$

55. An electron with charge  $e$  and mass  $m$  enters a magnetic field  $B$  perpendicular to its velocity. Which of the following statements is FALSE?

- A) The electron continues to move in a straight line.
- B) The motion of the electron is circular with constant angular velocity.
- C) The radius of the electron's path depends on its velocity.
- D) The motion of the electron has a period of  $\frac{2\pi m}{eB}$ .
- E) The force on the electron is perpendicular to its velocity.

56. How much heat is required to raise the temperature of a 0.1 kg aluminum rod from  $20^{\circ}\text{C}$  to  $70^{\circ}\text{C}$  if the specific heat of aluminum is  $0.9\text{ kJ/kg} \times ^{\circ}\text{C}$ ?

- A) 3.5 kJ
- B) 4.0 kJ
- C) 4.5 kJ
- D) 5.0 kJ
- E) 5.5 kJ

57. In a conductor with a resistance of  $10\Omega$ , what current is needed to dissipate 25000 W of power?

- A) 50 A
- B) 25 A
- C) 15 A
- D) 30 A
- E) 35 A

58. The acceleration due to gravity on the Earth is six times more than that on the moon. Dr. Green records the weight of a rock as 250 N on the moon.

Calculate the density of the rock given that it has a volume of  $250 \text{ cm}^3$ .

$$(g_{\text{earth}} = 10 \text{ ms}^{-2})$$

A)  $0.2 \text{ kg/cm}^3$

B)  $0.5 \text{ kg/cm}^3$

C)  $0.6 \text{ kg/cm}^3$

D)  $0.7 \text{ kg/cm}^3$

E)  $0.8 \text{ kg/cm}^3$

59. The sum of the roots of the quadratic equation  $3x^2 - 9x + 5 = 0$  is:

A) 3

B) 6

C) -3

D) 2

E) -6

60. In a right triangle, the hypotenuse  $c$  is 20  $cm$ . One of the angles is  $30^\circ$ . What is the length of the altitude drawn from the right angle to the hypotenuse?

A) 10  $cm$

B)  $5\sqrt{3}$   $cm$

C)  $15\sqrt{3}$   $cm$

D)  $10\sqrt{3}$   $cm$

E)  $7\sqrt{3}$   $cm$