The test consists of 40 questions in English, divided into the following areas:
- Mathematics - Statistics
- Chemistry - Biochemistry
- Physics
- Cell biology
- Physiology - Anatomy
- Pathology
- Microbiology
- Genetics - Molecular Biology
- Immunology

The candidate has a maximum of 40 minutes to complete the test. The answers to the questions are assessed as follows:
• correct answer: + 1 point
• wrong answer: - 0.1 points
• answer not given: 0 points.

This file provides examples of representative questions for each area. The test will comprise more than one question for each topic, and the difficulty level might vary. A more detailed list of topics is available in the "Syllabus for admission test".

MATHEMATICS

1) The inequality (x^2 - 1) > 0 [x squared minus 1 is greater than zero]

A. is always correct
B. is correct if 0 < x < 1 [x is comprised between -1 and 1]
C. is correct if x < -1 or x > 1 [x is smaller than -1 or x is greater than 1]
D. is correct only if x ≠ 1 [x is not equal to 0]

STATISTICS

2) In the United States, in 2017 24,090 new cases of stomach cancer were diagnosed. In the same year, there were an estimated 116,525 people living with stomach cancer. Considering that the total US population was 330,000,000 people, the right formula to calculate the prevalence of stomach cancer in the US population in 2017 is:

A. 24,090 divided by 330,000,000
B. 116,525 divided by 330,000,000
C. 24,090 divided by 116,525
D. 116,525 plus 24,090, divided by 330,000,000

CHEMISTRY

3) Atoms of elements in a group on the Periodic Table have similar chemical properties. This similarity is most closely related to the atoms'...

A. Number of principal energy levels.
B. Number of valence electrons.
C. Atomic numbers.
D. Atomic masses.

BIOCHEMISTRY

4) Signal sequences are part of a protein that

A. signal folding of the protein
B. signal the protein synthesis on the ribosomes is ended
C. transport proteins to other sites within the cell
D. refold proteins in misfolded proteins if not cleaved

PHYSICS

5) The circular motion of a mass at uniform speed
A. requires a force accelerating the mass towards the center of the trajectory
B. requires a force accelerating the mass along the trajectory
C. does not require an accelerating force because the motion is inertial
D. requires an outward force to counterbalance the weight of the mass

CELL BIOLOGY

6) What is the role of cohesin proteins in cell division?
A. They organize the DNA of the chromosomes into highly condensed structures
B. They hold the DNA of the sister chromatids together
C. They help the cell divide into two daughter cells
D. They connect microtubules and chromosomes

ANATOMY

7) Which cells in the stomach produce hydrochloric acid?
A. Enterochromaffin cells
B. G cells
C. Parietal cells
D. Endothelial cells

PHYSIOLOGY

8) A blood pressure reading is 120/82. What information does this reading provide?
A. Force needed to open a heart valve
B. Force of atrial contractions
C. Pressure of the blood against artery walls
D. Pressure of the blood as it flows in veins

PATHOLOGY

9) Which of these stimuli does always induce atrophy?
A. Hypoxia
B. Immobilization
C. Mechanical load
D. Hormones

MICROBIOLOGY

10) The bacterial plasmids are:
A. replicons that propagate stably as extrachromosomal elements
B. circular DNA molecules essential for the survival of the bacterial cell
C. linear DNA molecules localized in the cytoplasm of the bacterial cell
D. circular DNA molecules localized in the nucleus of the bacterial cell

GENETICS

11) What is DNA micro satellite?
A. repeated DNA sequences arranged in tandem, of length between 100 and 5000 kb
B. repeated DNA sequences arranged in tandem, of length between 100 bp and 20 kb
C. repeated DNA sequences arranged in tandem, of a length typically less than 150 bp
D. stretch of repeated identical nucleotides, of length between 10 and 50 bp

MOLECULAR BIOLOGY

12) The Western blotting is:

A. a technique to transfer onto a nylon or nitrocellulose membrane DNA fragments that have been previously separated by electrophoresis on agarose gel and are subsequently identified by hybridization with DNA or RNA probes
B. a technique to transfer onto a nylon membrane RNA fragments that have been previously separated by electrophoresis on agarose gel and are subsequently identified by hybridization with DNA probes
C. a technique to transfer and immobilize a sample of nucleic acids onto a solid support, generally a membrane of nitrocellulose or nylon
D. a technique to transfer onto a nylon or nitrocellulose membrane proteins that have been previously separated by electrophoresis on polyacrylamide gel and are subsequently identified by incubation with antibodies

IMMUNOLOGY

13) Interleukin 2

A. stimulates the proliferation of B lymphocytes
B. stimulates the proliferation of the connective cells
C. stimulates the proliferation of tumor cells
D. stimulates the proliferation of T lymphocytes

ANSWERS

1) C
2) B
3) B
4) C
5) A
6) B
7) C
8) C
9) B
10) A
11) C
12) D
13) D