ADMISSION FOR STUDIES IN ENGLISH AT THE MEDICAL UNIVERSITY OF LODZ MEDICINE, DENTISTRY &NURSING

ENTRANCE EXAM – SAMPLE QUESTIONS.

BIOLOGY
1. Discuss the role of internal membranes of eukaryotic cells in their structural and functional compartmentalization.
2. Genes specify proteins via transcription and translation – describe these two processes.
3. Describe 3 features that are unique for viruses.
4. Prove that the components of the human blood function in exchange, transport, and defense.
5. Describe the main stages of food processing in the human organism.

CHEMISTRY
1. What is the name of sequence of three nucleotides in mRNA that specifies a certain aminoacid to be placed in a protein? Name and briefly describe the process that it is involved in.
2. List the main types of chemical bonds and describe the weakest one.
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4. What are hypertonic and hypotonic solutions?
5. What is protein denaturation? List the factors that may cause protein denaturation.

PHYSICS

1. In what time light from the Sun reaches Earth?
2. What is the range of visible light waves?
3. Does temperature affect the volume of gas, and if so, how?
4. What kind of radiation is commonly used in medicine and for what?
5. With what speed supersonic plane is flying?

MATHEMATICS

1/ If both 11^2 and 3^3 are factors of the number a * 4^3 * 6^2 * 13^{11}, then what is the smallest possible value of a?
A. 121
B. 3267
C. 363
D. 33

E. None of the above

2/ How many different positive integers exist between 10^6 and 10^7, the sum of whose digits is equal to 2?
A. 6
B. 7
C. 5
D. 8
E. 18

3/ What is the area of an obtuse angled triangle whose two sides are 8 and 12 and the angle included between two sides is 150^0?
  A. 24 sq units
  B. 48 sq units
  C. $24\sqrt{3}$
  D. $48\sqrt{3}$
  E. Such a triangle does not exist

4/ If the cost price of 20 articles is equal to the selling price of 25 articles, what is the % profit or loss made by the merchant?
  A. 25% loss
  B. 25% profit
  C. 20% loss
  D. 20% profit
  E. 5% profit

5/ If $Log_x (1 / 8) = - 3 / 2$, then x is equal to