ENTRANCE EXAM – SAMPLE QUESTIONS

Admission for studies in English: Medicine (6MD) & Dentistry (5DMD)

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. Prove that the components of the human blood function in exchange, transport, and defense.
4. The main function of cell's rough endoplasmic reticulum (RER) is:
   a) accumulation of toxic waves
   b) protein biosynthesis and transport
   c) giving a cell shape
   d) lipids biosynthesis.
5. What does the liver do to help digestion?:
   a) produces bile
   b) releases important enzymes
   c) regulates insulin
   d) neutralizes stomach acid.

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.
3. What is protein denaturation? List the factors that may cause protein denaturation.
4. Identify the element found in a protein that is not present in a carbohydrate:
   a) Hydrogen
   b) Carbon
   c) Nitrogen
   d) Oxygen.
5. Which of the following compounds is a Lewis acid?
   a) H_2O
   b) NH_3
   c) BF_3
   d) HCl.

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. The lowest temperature possible in nature is:
   a) 0 degrees C
   b) 4 K
   c) -273 degrees C
   d) none of the above.
5. The speed of a 4-kg ball with a momentum of 12kg m/s is:
   a) 48 m/s
   b) 4 m/s
   c) 3 m/s
   d) 12 m/s.

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) 3267
   b) 33
   c) 363
   d) 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) 5
   b) 6
   c) 7
   d) 8.

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) $24\sqrt{3}$
   b) 48 sq units
   c) 24 sq units
   d) 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) 5% loss
   b) 25% profit
   c) 20% loss
   d) 5% profit.

5. How many keystrokes are needed to type numbers from 1 to 1000?
   a) 3001
   b) 2890
   c) 2893
   d) 2704.