

Answer the following questions (10 points/each question):

1. It is generally accepted that life developed from nonliving matter by chemical evolution. What are the requirements for chemical evolution, and why is each essential?
2. Describe the structure of the cell membrane. How do the two faces of the membrane differ? What is the functional significance of these differences?
3. What are the differences and similarities between mitosis and meiosis?
4. How can an organism produce millions of genetically dissimilar gametes even though all its body cells are genetically identical?
5. The movements of water and sugars in plant body are so important for their growth and development. Please give the most widely accepted explanation for each phenomenon.
6. What digestive roles are played by the pancreas and liver?
7. Describe the ways in which immunity can be produced.
8. Describe the main two modes of mechanism by which hormones act in their target cells.
9. What are the three significant differences between the somatic and autonomic nervous systems?
10. Distinguish between the following terms:
 - (a) food chain/food web
 - (b) divergent evolution/convergent evolution
 - (c) population/community