IMPORTANT QUESTIONS
BIOLOGY FOR ENGINEERS

MODULE-1

1. Explain the structure and functions of the cell with a neat labelled diagram.
2. Mention the differences between plant cells and animal cells.
3. What are stem cells? Explain the classification and application of stem cells
4. Explain in detail the properties and applications of
    a. Nucleic acids
    b. Carbohydrates
    c. Lipids
    d. Enzymes

MODULE-2

1. What are the key properties, advantages, and limitations of cellulose-based water filter
2. Describe the use of 1. Whey protein 2. Meet analogues and 3. Plant-based proteins as food with examples.
3. With an example explain the development of vaccines for the treatment of rabies. (DNA)
4. With an example explain the development of vaccines for the treatment of COVID-19. (RNA).
5. Illustrates the properties and applications of PHA & PLA.
6. Write a note on Lipid-based Biodiesel and Lipid-based cleaning agents.
7. Explain the mechanism of Enzyme Glucose Oxidase enzyme in Biosensors.
8. Explain the mechanism of the lignolytic enzyme in Bioleaching.

MODULE-3

1. With a neat diagram explain the working principle of the heart-lung machine.
2. Explain in detail the Brain as a CPU. Explain the engineering solutions for Parkinson disease.
3. What is ECG? Describe Various parts of the ECG.
4. Explain the reasons for Heart Blockage and Explain the design of Stents, Pacemakers, and defibrillators.
5. What are Pacemakers? Briefly Explain various kinds of Pacemakers.
6. Explain the architecture of Rod-Cone Cells. And explain optical corrections of the Human Eye.
7. Explain the kidney as a filtration system and describe the mechanism of the dialysis system.

IMPORTANT QUESTIONS
BIOLOGY FOR ENGINEERS

MODULE-4

1. Explain the following. 1. Bionic leaf 2. Photovoltaic cells.
2. What Echolocation? Explain Ultrasonography and Sonars
3. Explain the Lotus leaf effect as super hydrophobic and Self-cleaning surfaces.
4. Write a note on haemoglobin-based oxygen carriers (HBOCs) and perfluorocarbons (PFCs).
5. Explain the following.
    a. Shark skin as a friction-reducing swimsuit.
    b. Kingfisher beak as bullet train

MODULE-5

1. Write a note on muscular and skeletal systems as scaffolds and explain bioengineering solutions for muscular dystrophy and osteoporosis.
2. Explain the Bio-imaging and AI for disease diagnosis
3. Write a note i. Self-healing bio concrete ii. Bioremediation.
4. Write a note on bio-printing techniques and materials.
5. Explain the electrical tongue and electrical nose in food science.

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