

DEPTH OF BIOLOGY

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BIOTECHNOLOGY 6TH SEM IMPORTANT QUESTIONS

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Unit I

10 Hours

- a) Brief introduction to Biotechnology with reference to Pharmaceutical Sciences.
- b) Enzyme Biotechnology- Methods of enzyme immobilization and applications.
- c) Biosensors- Working and applications of biosensors in Pharmaceutical Industries.
- d) Brief introduction to Protein Engineering.
- e) Use of microbes in industry. Production of Enzymes- General consideration - Amylase, Catalase, Peroxidase, Lipase, Protease, Penicillinase.
- f) Basic principles of genetic engineering.

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10 MARKS QUESTION

1. Explain enzyme immobilization, it`s application and method
2. Give brief introduction on protein engineering DEPTH OF BIOLOGY

05 MARKS QUESTION

1. Explain biosensor, give a brief introduction on it`s working + application
2. Write a short note on genetic engineering [rDNA technology]
3. Discuss the production of- amylase , penicillinase DEPTH OF BIOLOGY

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02 MARKS QUESTION

1. Explain the term biotechnology
2. What is enzyme immobilization
3. Explain biosensor
4. Explain the use of microbes in industry
5. Explain role of enzymes [amylase catalase, peroxidase, lipase , protease, penicillinase]

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Unit II DEPTH OF BIOLOGY

10 Hours

- a) Study of cloning vectors, restriction endonucleases and DNA ligase.
- b) Recombinant DNA technology. Application of genetic engineering in medicine.
- c) Application of r DNA technology and genetic engineering in the production of:
 - i) Interferon ii) Vaccines- hepatitis- B iii) Hormones-Insulin.
- d) Brief introduction to PCR

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10 MARKS QUESTION

1. Write a detailed note on rDNA technology & also discuss the application of genetic engineering in medicine DEPTH OF BIOLOGY

05 MARKS QUESTION

1. Write short note on application of genetic engineering in medicine
2. Give brief introduction on polymerase chain reaction [PCR}
3. Discuss the production of hormone- insulin via genetic engineering process

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02 MARKS QUESTION

1. Explain PCR **DEPTH OF BIOLOGY**
2. What is the role of DNA ligase in genetic engineering
3. Explain term cloning vector **DEPTH OF BIOLOGY**
4. Explain the role of restriction endonuclease in genetic engineering

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Unit III

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10 Hours

Types of immunity- humoral immunity, cellular immunity

a) Structure of Immunoglobulins

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b) Structure and Function of MHC

c) Hypersensitivity reactions, Immune stimulation and Immune suppressions.

d) General method of the preparation of bacterial vaccines, toxoids, viral vaccine, antitoxins, serum-immune blood derivatives and other products relative to immunity.

e) Storage conditions and stability of official vaccines

f) Hybridoma technology- Production, Purification and Applications

g) Blood products and Plasma Substitutes.

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10 MARKS QUESTION DEPTH OF BIOLOGY

1. Explain hybridoma technology, its production purification and application
2. Explain immunity, its types and also the structure of immunoglobulin

DEPTH OF BIOLOGY 05 MARKS QUESTION DEPTH OF BIOLOGY

1. Discuss about various blood products and plasma substitutes
2. Discuss storage condition and stability of any 2 official vaccines
3. Give brief introduction of structure and function of MHC
4. Explain term immune stimulation and immune suppressions

If you have sufficient time then you can go through general method of preparation of bacterial and viral vaccine

02 MARKS QUESTION

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1. Define immunity
 2. Function of MHC
 3. Explain hypersensitivity reaction
 4. Define vaccine
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Unit IV

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08Hours

- a) Immuno blotting techniques- ELISA, Western blotting, Southern blotting.
- b) Genetic organization of Eukaryotes and Prokaryotes
- c) Microbial genetics including transformation, transduction, conjugation, plasmids and transposons.
- d) Introduction to Microbial biotransformation and applications.
- e) Mutation: Types of mutation/mutants.

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DEPTH OF BIOLOGY 10 MARKS QUESTION

1. Explain microbial biotransformation with suitable examples and its application

DEPTH OF BIOLOGY 05 MARKS QUESTION

1. Explain immune blotting technique, give a detailed note on ELISA technique
2. Discuss genetic organisation of eukaryotes and prokaryotes
3. Explain mutation and its types

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02 MARKS QUESTION

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1. Explain ELISA
2. Explain terms- transformation, transduction, conjugation, plasmid, transposons
3. What is mutation

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Unit V

07 Hours

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- a) Fermentation methods and general requirements, study of media, equipments, sterilization methods, aeration process, stirring.
- b) Large scale production fermenter design and its various controls.
- c) Study of the production of - penicillins, citric acid, Vitamin B12, Glutamic acid, Griseofulvin,
- d) Blood Products: Collection, Processing and Storage of whole human blood, dried human plasma, plasma Substitutes.

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10 MARKS QUESTION

1. Explain fermentation and its general requirement . Give a detailed note on large scale fermenter **DEPTH OF BIOLOGY**
2. Give a brief note on blood products [collection, processing, storage]

05 MARKS QUESTION

1. Discuss the production of penicillin and griseofulvin
2. Discuss the general requirements of fermenter **DEPTH OF BIOLOGY**
3. Discuss the various control parameters for large scale fermenter design

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02 MARKS QUESTION

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1. Explain role of spragger in fermenter
2. Write down the use of citric acid, vitamin B12 and glutamic acid
3. What is aeration process

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