Printed Page:- 04 **Subject Code**:- **ABT0201**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: II CARRY OVER THEORY EXAMINATION AUGUST 2023

Subject: Introduction to Biotechnology

Time: 3 Hours **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* **three Sections -A, B, & C.** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION A **20**

1. Attempt all parts:-

1-a. Which organism among these does not have a cell wall? (CO1) 1

(a) Bacteria.

(b) Fungus.

(c) Plant.

(d) Animals

1-b. Lecithin is a (CO1) 1

(a) Lipid

(b) Protein

(c) Carbohydrate

(d) Fat

1-c. Linnaeus used which kingdom of classification? (CO2) 1

(a) Artificial system

(b) Natural system

(c) Phylogenetic system

(d) Asexual system

1-d. Genes of Tobacco Mosaic Virus are (CO2) 1

(a) Double-stranded RNA

(b) Single-stranded RNA

(c) Double-stranded DNA

(d) Proteinaceous

1-e. Which was the last human chromosome to be completely sequenced ? (CO3) 1

(a) Chromosome 1

(b) chromosome 11

(c) Chromosome 21

(d) Chromosome X

1-f. Which out of the following statements is incorrect ? (CO3) 1

(a) Genetic code is ambiguous.

(b) Genetic code is deqenerate.

(c) Genetic code is universal.

(d) Genetic code is non-overlanning.

1-g. The letter T in T-lymphocytes refers to? (CO4) 1

(a) tonsil

(b) thalamus

(c) thymus

(d) thyroid

1-h. The immunoglobulin abundant in colostrum, is? (CO4) 1

(a) Ig D

(b) Ig A

(c) Ig G

(d) Ig M

1-i. A protoxin is (CO5) 1

(a) A primitive toxin

(b) A denatured toxin

(c) Toxin produced by protozoa

(d) Inactive toxin

1-j. Silencing of a gene could be achieved through the use of: (CO5) 1

(a) short interfering RNA

(b) antisense RNA

(c) by both

(d) none of the above

2. Attempt all parts:-

2.a.	Define the term cell and cell biology. (CO1)	2
2.b.	It is said that the one cycle of cell division in human cells (eukaryotic cells) takes 24 hours. Which phase of the cycle, do you think occupies the maximum part of cell cycle? (CO2)	2
2.c.	What is the function of amino acyl t-RNA synthase? (CO3)	2
2.d.	Mention the site in the body where the B-cells and T-cells are formed ? Give one difference between them. (CO4)	2
2.e.	Name the toxin produced by *B thuringiensis.* (CO5)	2

SECTION B **30**

3. Answer any <u>five</u> of the following:-

3-a.	What is cell wall and where it is found? Give their functions. (CO1)	6
3-b.	Give minimum six differences between leucoplast and chloroplast? (CO1)	6
3-c.	Write a short note on Mycoplasma? (CO2)	6
3-d.	Discuss somatic cell division and mention its importance? (CO2)	6
3.e.	Why is DNA with a high GC content more difficult to denature than that with a low GC content? (CO3)	6
3.f.	Compare and give examples of Innate and acquired immunity? (CO4)	6
3.g.	Explain different methods of Gene Therapy. (CO5)	6

SECTION C **50**

4. Answer any <u>one</u> of the following:-

4-a.	Describe the ultra structure of biomembrane? Discuss the different functions of plasma membrane? (CO1)	10
4-b.	Define the term enzymes? Discuss the different factors which affects the enzyme activity? (CO1)	10

5. Answer any <u>one</u> of the following:-

5-a.	Describe the various events that occur during the process of meiosis cell division? (CO2)	10
5-b.	Write down the important characteristics of fungi? Compare the different types of fruiting bodies in fungi? (CO2)	10

6. Answer any <u>one</u> of the following:-

6-a.	Define bacterial transformation. Who demonstrated it experimentally and how? (CO3)	10
6-b.	Compare and contrast repressible and inducible operons. (CO3)	10

7. Answer any <u>one</u> of the following:-

7-a.	How is the lymph node structured to encourage a successful adaptive immune response? (CO4)	10
7-b.	Describe in detail the features of adaptive immune response and the movement of its cells throughout the body? (CO4)	10

8. Answer any <u>one</u> of the following:-

8-a.	Explain the various steps involved in the production of artificial insulin? Explain how Eli Lilly, an American company, produced insulin by recombinant DNA technology? (CO5)	10
8-b.	"Insulin produced earlier had problems that has been overcome with rDNA technology" comment on it. Explain why is Insulin not administered orally? (CO5)	10