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GD—35—2023

FACULTY OF SCIENCE

B.Sc. (Second Year) (Fourth Semester) EXAMINATION

APRIL/MAY, 2023

(New Course)

BIOTECHNOLOGY

Paper–DSEBT–4D-I

(Basics of Computer)

(Friday, 28-4-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Draw neat and well labelled diagrams if necessary.

1. Find mean and median for the data given below : 15

Class	***f***
10 – 20	6
20 – 30	8
30 – 40	5
40 – 50	9
50 – 60	10

Or

(*a*) What is frequency curve ? Draw frequency curve for the data given below : 8

Class	***f***
10 – 30	20
30 – 50	80
50 – 70	90
70 – 90	40

(*b*) Explain the methods of diagrammatic representation of data. 7

2. Define Range. How to calculate range for discrete and grouped data. 15

Or

(*a*) Write merits and demerits of standard deviation. 8

(*b*) Write steps and formula for calculation of variance. 7

3. Explain in detail the concept of binary, decimal, octal and hexadecimal number systems with examples. 15

Or

(*a*) Explain features and applications of windows operating system. 8

(*b*) Explain features and applications of Linux operating system. 7

4. Write functions of different menus in MS Excel. Add a note on applications of MS Excel. 15

Or

(*a*) Write features and applications of MS PowerPoint. 8

(*b*) Explain the concept of WWW aand URL. 7

5. Write short notes on (any *three*) : 3×5=15

(*i*) Browsers

(*ii*) Steps for construction of histogram

(*iii*) Subdivided bar diagram

(*iv*) Search engines

(*v*) Basic architecture of computer.

This question paper contains **2** printed pages]

GD—07—2023

FACULTY OF SCIENCE

B.Sc. (Fourth Semester) EXAMINATION

APRIL/MAY, 2023

(New Course)

BIOTECHNOLOGY

(Basics of Enzymology)

(Thursday, 20-4-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) *All* questions carry equal marks.

1. Describe in detail nomenclature and classification of enzyme. 15

Or

(*i*) Explain ribozymes and metal activated enzymes. 8

(*ii*) Discuss properties and general characteristics of enzyme. 7

2. Discuss in detail reversible and irreversible inhibition. 15

Or

(*i*) Describe mechanism of acid-base enzyme catalysis. 8

(*ii*) Discuss enzyme active site and types of specificity. 7

3. Describe in detail immobilization of enzyme and its applications. 15

Or

(*i*) Discuss molecular weight of enzyme using SDS-PAGE. 8

(*ii*) Explain purification of enzyme using dialysis method. 7

4. Describe in detail Michealis-Menten equation. 15

Or

(*i*) Discuss factors affecting the enzyme activity. 8

(*ii*) Discuss the significance of LB plot. 7

5. Write short notes on any *three* : 3×5=15

(*i*) Turnover number

(*ii*) Salt precipitation

(*iii*) Induced fit model of enzyme

(*iv*) Coenzymes and cofactor

(*v*) Enzyme Unit.

This question paper contains **2** printed pages]

GD—21—2023

FACULTY OF SCIENCE

B.Sc. (Second Year) (Fourth Semester) EXAMINATION

APRIL/MAY, 2023

(New Course)

BIOTECHNOLOGY

(Immunology and Virology)

(Wednesday, 26-4-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) Attempt *all* questions.

(*ii*) *All* questions carry equal marks.

(*iii*) Represent your answers with well labelled diagrams.

1. Define secondary Lymphoid organs. Describe structure and functions of Lymph node and spleen. 15

Or

(*a*) Write a note on Lymphocytes. 8

(*b*) Write a note on innate immunity. 7

2. Define Antibody. Describe properties and biological roles of different classses of immunoglobulins. 15

Or

(*a*) Write a note on Agglutination reactions. 8

(*b*) Write a short note on complement fixation test. 7

3. Describe in detail LHT system of classification. 15

Or

(*a*) Explain ultra structure of viruses. 8

(*b*) Write a note on cultivation of viruses. 7

4. Describe structure and life-cycle of λ–phage. 15

Or

(*a*) Explain structure of HIV. 8

(*b*) Explain Ebola virus. 7

5. Write short notes on (any *three*) : 3×5=15

(*a*) Neutrophils

(*b*) Antigen

(*c*) Viroids

(*d*) Corona virus

(*e*) Vaccines.

This question paper contains **2** printed pages]

GD—36—2023

FACULTY OF SCIENCE

B.Sc. (Fourth Semester) EXAMINATION

APRIL/MAY, 2023

(New Pattern)

BIOTECHNOLOGY

(Plant Tissue Culture)

(Friday, 28-4-2023) **Time : 2.00 p.m. to 5.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Draw neat and well labelled diagrams if necessary.

1. What is plant tissue culture ? Describe in detail organization of a plant tissue culture laboratory. 15

Or

(*a*) Explain various sterilization techniques used in Plant tissue culture laboratory. 8

(*b*) Describe in detail various components of a plant tissue culture media. 7

2. Describe in detail steps involved in Micropropagation. 15

Or

(*a*) Describe in detail various types of cultures. 8

(*b*) Explain in detail the technique of Anther culture. 7

3. Explain in detail technique of Somatic hybridization and add a note on its applications. 15

Or

(*a*) Explain the technique of Somaclonal variation. 8

(*b*) Explain the technique of Embryo culture. 7

4. Explain the concept of Germplasm conservation. Explain in detail Cryopreservation. 15

Or

(*a*) Explain the technique of Somatic hybridization. 8

(*b*) Explain the technique of Endosperm culture. 7

5. Write short notes on any *three* of the following : 15

(*a*) Somatic embryogenesis

(*b*) Gametoclonal variation

(*c*) Metabolic Engineering

(*d*) Totipotency.