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PB—19—2024

FACULTY OF SCIENCE

B.Sc. (Third Year) (Sixth Semester) EXAMINATION

APRIL/MAY, 2024

(New Course)

BIOTECHNOLOGY

(Agriculture Biotechnology)

(Wednesday, 10-04-2024) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

Note *:—* (*i*) *All* questions carry equal marks.

(*ii*) *All* questions are compulsory.

(*iii*) Draw neat diagram wherever necessary.

1. Describe in detail Symbiotic Nitrogen Fixation. 15

Or

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

(*b*) Explain in brief Phytoharmones. 7

2. Explain in detail Rhizobium inoculant. 15

Or

(*a*) Describe in detail Sulphur and Phosphate solubilizing Biofertilizer. 8

(*b*) Write a note on application of Biofertilizer. 7

3. Describe in brief citrus canker of lemon. 15

Or

(*a*) Powdery mildew of wheat. 8

(*b*) Host-Pathogen Relationship. 7

4. What are Biopesticides ? Explain in detail types of Biopesticides. 15

Or

(*a*) Mushroom Production 8

(*b*) SCP 7

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

(*i*) Assimilation of Sulphur

(*ii*) Blue Green Algae as a Biofertilizer

(*iii*) Whip smut of sugarcane

(*iv*) Biomass as a energy source

(*v*) Nitrogenase complex.

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

PB—20—2024

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (Third Year) (Sixth Semester) EXAMINATION

APRIL/MAY, 2024

(New Course)

BIOTECHNOLOGY

(Animal Biotechnology)

(Wednesday, 10-04-2024) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

Note *:—* (*i*) Attempt *all* questions.

(*ii*) Illustrate your answers with suitably labelled diagram wherever necessary.

1. Describe in detail the equipments used for animal cell culture. 15

Or

(*a*) Write a short note on laminar flow hoods. 8

(*b*) Explain the transformed cell lines. 7

2. Describe in detail isolation and separation of cells from tissue. 15

Or

(*a*) Explain in detail viable cell count with suitable example. 8

(*b*) What is BSS ? Describe any *two* types. 7

3. Describe in detail cryopreservation of animal cell. 15

Or

(*a*) Explain cell-cell interaction. 8

(*b*) Write a short note on scale up animal cell culture. 7

4. Define cell transformation. Explain physical and chemical cell transformation methods. 15

Or

(*a*) Explain cell fusion method. 8

(*b*) What is animal cell culture ? Enlist the application of cell culture. 7

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

(*i*) CO_2 incubator

(*ii*) Minimum Essential Medium

(*iii*) Cell Synchronization

(*iv*) Hybridoma technology.

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

PB—13—2024

FACULTY OF SCIENCE

B.Sc. (Third Year) (Sixth Semester) EXAMINATION

APRIL/MAY, 2024

(New Pattern)

BIOTECHNOLOGY

(Environmental Biotechnology)

(Saturday, 06-04-2024) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

Note *:—* (*i*) *All* questions are compulsory.

(*ii*) Draw a well labelled diagram wherever necessary.

1. Describe industrial waste water treatment in detail. 15

Or

(*a*) Activated sludge process 8

(*b*) Rotating Biological contactors 7

2. Describe solid waste management with advantages. 15

Or

(*a*) Aerobic degradation pathway 8

(*b*) Anaerobic degradation pathway 7

P.T.O.

3. What is bioremediation ? Describe methods of bioremediation with advantages and disadvantages. 15

Or

(*a*) Phytoremediation 8

(*b*) Bioremediation of Soil 7

4. Describe pesticide degradation principle with suitable example. 15

Or

(*a*) Cytochrome-P450 system 8

(*b*) Herbicide degradation 7

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

(*i*) Packed bed reactor

(*ii*) Biodegradation of Hydrocarbon

(*iii*) Concept of Bioremediation

(*iv*) Xenobiotics

(*v*) Plasmid borne metabolic activities.

This question paper contains **3** printed pages]

1001—2024

FACULTY OF ALL

B.A./B.Com./B.Sc. (Fifth Semester) EXAMINATION

APRIL/MAY, 2024

ENVIRONMENTAL STUDIES (Compulsory)

पर्यावरण अभ्यास (अनिवार्य)

(Wednesday, 03-04-2024) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—40

Note *:—* (*i*) Attempt *all* questions.

(*ii*) Illustrate your answer with suitable labelled diagram wherever necessary.

(*i*) **सर्व** प्रश्न सोडवा.

(*ii*) आवश्यकता असेल तेथे आकृती काढून नावे घ्या.

1. Write in detail non-renewable resources. 15

क्षयक्षम साधन संपत्ती बद्दल सविस्तर माहिती लिहा.

P.T.O.

Or

(किंवा)

(A) Define ecosystem and explain grassland ecosystem. 8

परिसंस्था म्हणजे काय ? गवताळ परिसंस्थे बद्दल माहिती द्या.

(B) Describe conservating of biodiversity. 7

जैवविविधतेचे संवर्धन बद्दल वर्णन करा.

2. Define air pollution. Describe its sources, effects and control measures. 15

'हवा प्रदूषण म्हणजे काय ? हवा प्रदूषणाची कारणे, परिणाम व नियंत्रण ह्या बद्दल माहिती विशद करा.

Or

(किंवा)

(A) What is ecological successing ? 8

परिस्थितीक अनुक्रम म्हणजे काय ?

(B) Values of biodiversity. 7

जैवविविधतेचे मूल्य.

3. Write short notes on (any *two*) : 10

(*a*) Draught

(*b*) Soil erosion

(*c*) Pond

(*d*) Food Web.

थोडक्यात टिपा लिहा (कोणतेही **दोन**) :

(अ) दुष्काळ

(ब) जमीनीची धुप

(क) तळे

(ड) अन्न जाळे.

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PB—07—2024

FACULTY OF SCIENCE

B.Sc. (Third Year) (Sixth Semester) EXAMINATION

APRIL/MAY, 2024

(New Pattern)

BIOTECHNOLOGY

(Industrial Biotechnology)

(Thursday, 04-04-2024) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

Note *:—* (*i*) Attempt *all* questions.

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

(*iii*) Draw well labelled diagrams wherever necessary.

1. What is strain improvement ? Describe isolation of mutants which do not recognize presence of inhibitors. 15

Or

(*a*) Describe isolation of mutants which do not produce feedback inhibitors. 8

(*b*) Describe modification of permeability. 7

2. Describe centrifugation. 15

Or

(*a*) Describe drying 8

(*b*) Describe ultrafiltration. 7

3. Describe penicillin production. 15

Or

(*a*) Describe pectinase production. 8

(*b*) Describe vitamin B_2 production. 7

4. Describe GMP 15

Or

(*a*) Describe GLP. 8

(*b*) Describe pyrogen testing 7

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

(*a*) QA

(*b*) Sterility testing

(*c*) Reverse Osmosis

(*d*) Ion-exchange chromatography

(*e*) Erythromycin production.

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PB—02—2024

FACULTY OF SCIENCE

B.Sc. (Third Year) (Sixth Semester) EXAMINATION

APRIL/MAY, 2024

(New Course)

BIOTECHNOLOGY

(Pharmaceutical Biotechnology)

(Tuesday, 02-04-2024) **Time : 10.00 a.m. to 1.00 p.m.**

Time—3 *Hours* *Maximum Marks*—75

Note *:—* (*i*) Attempt *all* questions.

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

1. What are secondary metabolites ? Explain their types and add a note on the factors that affect production of secondary metabolites. 15

Or

(*a*) Explain production of secondary metabolites by hair root culture. 8

(*b*) Explain various medicinal applications of plant secondary metabolites. 7

2. What are antibiotics ? Explain classification of antibiotic based on mode of action and chemical groups attached to them. 15

Or

(*a*) Explain principle and methods of microbial assay. 8

(*b*) Explain various types of microbial resistance to antibiotics. 7

3. Describe in detail mechanism of action of antihypertensive drugs. 15

Or

(*a*) Explain structure and mechanism of action of Quinolones and Sulfonamides. 8

(*b*) Explain in detail structure and mode of action of Nystatin and Griseofulvin. 7

4. What is drug development ? Explain in brief various stages involved in drug development process. 15

Or

(*a*) Explain various drug delivery systems. 8

(*b*) Explain the concept of pharmacokinetics. 7

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

(*a*) International Pharmacopoeia

(*b*) Antidiabetic drugs

(*c*) Azidothymidine

(*d*) Chemoinformatics

(*e*) Pharmacodynamics.