Sl.No. E-727 SUBJECT CODE: 48117201

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.TECH -DEGREE EXAMINATIONS- APR/MAY - 2019
BIOTECHNOLOGY
SECOND SEMESTER
GENETIC ENGINEERING

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Comment on Baculovirus vectors.
2 Differentiate cosmid and a plasmid.
3 Give schematic representation for construction of genomic DNA
4 What is a 'superbug'?
5 What is Ligase chain Reaction?
6 Define DNA sequencing.
7 Give the principle and Applications of RFLP.
8 Write short notes on gene therapy
9 Give a brief note on triple helix therapeutics
10 Give short notes on Plastics from plants

PART-B (5 x 16 = 80)

11 a. Give an account on M13 vector.

OR

b. Give an account on Cloning vectors in Gram positive and gram negative bacteria

12 a. Explain in detail about Construction and screening of genomic DNA.

OR

b. Briefly explain gene transfer techniques in mammalian cells.

13 a. Describe Southern and Northern hybridization technique.

OR

b. Describe the Therapeutic potential of RNAi in metabolic diseases

14 a. Discuss about restriction Mapping.

OR

b. Describe the guidelines for the disposal of Biowaste.

15 a. Explain the production of human insulin in bacteria by suitable means.

OR

b. Give a detailed account on recombinant DNA vaccines.

****

Sl.No. E-664 SUBJECT CODE: 48117202

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.TECH -DEGREE EXAMINATIONS- APR/MAY - 2019
BIOTECHNOLOGY
SECOND SEMESTER
IMMUNOTECHNOLOGY

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Mention the Thymic hormones required for the maturation of T- Cells.
2 Briefly explain about ADCC.
3 What do you mean by CD? Explain their uses.
4 What are chemokines? Give examples
5 Write the role of antibody in neutralizing viruses.
6 Give the role of HLA in association with various diseases.
7 Comment on cross reactivity.
8 Schematically explain Counter current immunoelectrophoresis.
9 Differentiate attenuated and inactivated vaccines.
10 What are the basics and applications of reverse vaccinology?

PART-B (5 x 16 = 80)

11 a. With a neat sketch explain the organization and structure of lymphoid organs.

OR

b. Write short notes on the following a).T Lymphocytes b). B Lymphocytes

12 a. Write the properties of cytokines and list the functional groups of cytokines with their targets and effects.

OR

b. Write in detail about the understanding of pathogenesis of infectious diseases.

13 a. Describe the causative agent, pathogenesis and diagnosis of leprosy

OR

b. Explain in detail about the malarial pathogens, its pathogenesis and design of malaria vaccines.

14 a. Write in detail about a) radioimmunoassay. b) immunomics.

OR

b. Describe briefly on the Western blotting technique for proteins.

15 a. Discuss in detail about designing of DNA vaccine.

OR

b. Write short notes on a) catalytic antibodies b) idiotypic antibodies.

****

Sl.No. E-639 SUBJECT CODE: 48117203

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.TECH -DEGREE EXAMINATIONS- APR/MAY - 2019
BIOTECHNOLOGY
SECOND SEMESTER
STEM CELL BIOLOGY

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Give a brief account on mammary stem cell, neural stem cell and neural crest stem cell
2 What is Plasticity?
3 Define cell culture, histotypic cell culture and primary cell culture.
4 Write briefly about sandwich configuration
5 Give brief account on Aldefluor assay.
6 Add note on oligodendrocytes and astrocytes.
7 How are embryonic stem cells stimulated to differentiate?
8 Give the advantages and limitations of human somatic stem cells.
9 Write notes on neural stem cells for spinal cord repair
10 Comment on immortalized neural precursor cells

PART-B (5 x 16 = 80)

11 a. Write in detail about the mammalian stem cells development.

OR

b. Write the potential applications for stem cell research

12 a. Give the role of Scaffolds in tissue reconstruction.

OR

b. How reconstruction of epithelial and endothelial surfaces carried out.

13 a. Explain the process of the development of human neurospheres in neurons.

OR

b. Explain about the Immunolabelling procedures.

14 a. Discuss about the current advantages and limitations of human somatic stem cells.

OR

b. Explain the developments regarding establishment of human stem cell banks and registries.

15 a. Enumerate in detail about nuclear transplantation methods.

OR

b. How Foetal CD 34+ stem cells can be used for prenatal diagnosis of genetic abnormalities?

****

Sl.No. E-617 SUBJECT CODE: 48117206

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.TECH -DEGREE EXAMINATIONS- APR/MAY - 2019
BIOTECHNOLOGY
SECOND SEMESTER
ELECTIVE - BIOPHARMACEUTICAL TECHNOLOGY

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write the applications of medicines derived from the animal origin.
2 Give some methods used for biopharmaceutical production.
3 What is significance of Pharma Company?
4 What are the different methods of clinical trial?
5 Write the types of Granulation.
6 Comment on slugging.
7 Comment on granulocyte.
8 What is the role of RBC in disease transmission?
9 Comment on vaccine.
10 Comment on therapeutic value of polyclonal antibody.

PART-B (5 x 16 = 80)

11 a. Give an account on pharmaceuticals of animal origin.

OR

b. Give an account on biopharmaceuticals of microbial origin.

12 a. Explain in detail about the role of gene in drug discovery.

OR

b. Write an essay on clinical trials.

13 a. Explain in detail the methods of tablet preparation.

OR

b. Explain the ways of preservation of drugs and discuss the factors that affect the preservation.

14 a. Write short note on a) Platelets b)Neurotrophic factor.

OR

b. Write short notes on a) Haemostasis b) Antithrombin

15 a. Write an essay on Monoclonal antibodies.

OR

b. Write an essay on antisense oligonucleotide

****

Sl.No. E-514 SUBJECT CODE: 48117207

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.TECH -DEGREE EXAMINATIONS- APR/MAY - 2019
BIOTECHNOLOGY
THIRD SEMESTER
ELECTIVE - NANO SCIENCE AND ITS APPLICATIONS

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Comment on nano architecture.
2 List out the properties of nano materials.
3 What is top down approach?
4 Comment on TEM.
5 What is the significance of lipid as nanomaterial?
6 List out the applications of DNA based nanostructures.
7 What is the importance of alginic acid?
8 Write about Dipicolinic acid and its importance.
9 What is meant by cell repair system?
10 Write down the disadvantages of nano biochips.

PART-B (5 x 16 = 80)

11 a. Discuss about inorganic nanoscale systems for biosystems.

OR

b. Write short notes on (i) Bond width (ii) Sp hybridization

12 a. Discuss about molecular Self Assembly and its Characterization.

OR

b. Describe the structure and components involved in Transmission Electron Microscope.

13 a. Explain in detail about how proteins are used as components in nanodevices.

OR

b. Explain in detail about Chemotaxis and write the significance of it in response to bacteria.

14 a. Explain in detail about alginic acid as nano material.

OR

b. Write an essay on the various aspects of endospore as nano material.

15 a. Discuss in detail about nanobiochips.

OR

b. Discuss about novel biomaterial through self assembly.

****

Sl.No. E-724 SUBJECT CODE: 48117301

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.TECH -DEGREE EXAMINATIONS- APR/MAY - 2019
BIOTECHNOLOGY
FIRST SEMESTER
ADVANCED BIOPROCESS ENGINEERING

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Comment on sterilization and its types.

2 Write a note on Filter sterilization of Liquid.

3 Mention few important points to be considered in the design and construction of Fermenter.

4 Write about the principles of Membrane bioreactors.

5 Mention the limitations of Static method of Gassing out?

6 Mention the Importance of P_H and Temperature maintenance.

7 How to separate Soluble Products?

8 Differentiate Micro and Macro scale production.

9 Mention the commercially available medium for mammalian cell culture?

10 Define Solid State Fermentation (SSF).

PART-B (5 x 16 = 80)

11 a. Explain briefly about thermal death kinetics.

OR

b. Give a detailed note on Development of Bacterial inoculum and the importance of Bacterial Fermentation processes.

12 a. Briefly explain the Growth Pattern and Kinetics in Batch Culture.

OR

b. Give an account on design and operations of Novel bioreactors.

13 a. Briefly explain about control loops and self adapting controllers.

OR

b. Give a detailed note on Types of control system.

14 a. Explain the unstructured kinetic models for Microbial growth.

OR

b. Write detailed notes on the Chromatographic development techniques.

15 a. Give a brief account on economics of tissue culture.

OR

b. What is invitro fertilization? Bring out its significance.

****

Sl.No. E-718 SUBJECT CODE: 48117302

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.TECH -DEGREE EXAMINATIONS- APR/MAY - 2019
BIOTECHNOLOGY
THIRD SEMESTER
BIOINDUSTRIES AND ENTREPRENEURSHIP

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 List the Qualities Needed For Motivational Leadership.
2 Gist the metrices in Operation management.
3 What are the specific activities under PATSER?
4 Give a note on Strategy evaluation and correction.
5 What are the types of containment levels?
6 Give the different types of vectors used in gene therapy.
7 Define Venture capital.
8 Give few suggestions on profiling the bioentrepreneur.
9 What is Price/Sales Ratio?
10 Suggest few key policy recommendations and interventions in Biotechnology.

PART-B (5 x 16 = 80)

11 a. Describe in detail about controlling and decision making.

OR

b. Explain in detail the concept of supply chain management

12 a. Describe the process of strategic planning and state its importance.

OR

b. Write short notes on a) Generic strategy alternatives b) Stability expansion.

13 a. Write in detail about Levels of containment in biosafety.

OR

b. Explain in detail about stem cell, types and applications.

14 a. Discuss in detail about Biotechnology innovations benefits society.

OR

b. Give a detailed note on profiling the bioentrepreneur.

15 a. Explain briefly on Biotechnology investment trading rules.

OR

b. Write a detailed note on Government funding for Biotechnology.

****

Sl.No. E-711 SUBJECT CODE: 48117303

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.TECH -DEGREE EXAMINATIONS- APR/MAY - 2019
BIOTECHNOLOGY
THIRD SEMESTER
RESEARCH METHODOLOGY

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Write short note on types of research design.

2 What is meant by Thesis?

3 What is meant by samples?

4 Write the significance of frequency polygons.

5 Calculate the arithmetic mean of 2,4,6,8,10

6 State the assumptions in ANOVA.

7 Write the principle behind chromatographic techniques.

8 Define stationary phase.

9 How does cuvette helps in analysing sample.

10 Define atomic absorption spectroscopy.

PART-B (5 x 16 = 80)

11 a. Writ brief notes on the following:a. Exploratory research designs.
b. Diagnostic research designs. C. Descriptive research designs.
d. Experimental research designs.

OR

b. Define thesis. Write note on thesis writing and its Structure, Style and discourse markers.

12 a. Write note on data. Explain in detail about collection and presentation of data.

OR

b. Give brief note on discrete scale and continuous scale.

13 a. A normal population has a mean of 6.8 and standard deviation of 1.5. A sample of 400 numbers gave a mean of 6.75. Is the difference significant?

OR

(P.T.O)

b.

a) The nicotine content in milligrams in two samples of tobacco were found to be as follows

(Sample A	24	27	26	21	25	
Sample B	27	30	28	31	22	36

Can it be said that the two samples came from the same normal population

b) Two random samples gave the following results.

Sample	Size	Sample Mean	Sum of squares of deviations from the mean
1	10	15	90
2	12	14	108

Test whether the samplers come from the same normal population.

14 a.

Explain in detail about the principle and applications of paper chromatography.

OR

b.

Write detail about gas chromatography and its principle behind it.

15 a.

Explain in detail about principle and applications of UV-Sepctrophotometer.

OR

b.

Write down the principle, instrumentation and applications of atomic absorption spectroscopy.

****

Sl.No. E-701 SUBJECT CODE: 48117304

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.TECH -DEGREE EXAMINATIONS- APR/MAY - 2019
BIOTECHNOLOGY
THIRD SEMESTER
ELECTIVE - ENVIRONMENTAL BIOTECHNOLOGY

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 Give any two differences between symbiotic and free living bacteria in the soil.

2 Explain biotic and abiotic factors.

3 Define vermicomposting and list the feedstock used in it.

4 List the sources of air pollutants.

5 Write a short note on dye industry pollutants.

6 Give an account on industrial waste.

7 List the various methods of collection of MSW

8 What are the alternative waste treatment technologies?

9 Write short note on industry specific assessment methods.

10 Comment on Global Dimming

PART-B (5 x 16 = 80)

11 a. Elaborate the different types of microorganisms present in the soil and discuss about positive and negative roles played by them.

OR

b. Explain briefly about a] Gene bank b] Ecological adaptations.

12 a. Describe the approaches of *In situ* bioremediation with special emphasis on Land forming, Bioaccumulation and Bioaugmentation

OR

b. Give a detailed account on biodegradation of surfactants and pesticides.

13 a. Discuss in detail about the sources and disposal of pharmaceutical wastes.

OR

(P.T.O)

b. "Waste is no more a waste but a resource" – Justify the statement with suitable examples.

14 a. Describe various Methods for collection and disposal of MSW.

OR

b. How will you classify Hazardous waste management?

15 a. Write notes on a] EIA (b) Environmental issues at regional level.

OR

b. What are the steps taken by the Government to control deforestation?

****

Sl.No. E-685 SUBJECT CODE: 48117306

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.TECH -DEGREE EXAMINATIONS- APR/MAY - 2019
BIOTECHNOLOGY
THRID SEMESTER
ELECTIVE - FOOD SCIENCE AND TECHNOLOGY

(Candidates admitted under 2017 Regulations-CBCS)

Time : Three Hours Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

1 How does aldose differ from ketose?
2 Write the structural organization of Protein.
3 What is food microbiology
4 Define souring
5 What is Canning?
6 Indicate the importance of carotenoids and anthocyanins as food colorants
7 Give the advantages of rapid freezing
8 Define m/icrowave processing of foods
9 Give the steps involved in beverage production
10 Define about Minchin

PART-B (5 x 16 = 80)

11 a. What are fatty acids? Classify with suitable example.

OR

b. Explain the deficiency symptoms of (a) Macro minerals (b) Micro minerals

12 a. Explain different irradiation techniques in food preservation

OR

b. Explain in detail about bacterial food infections

13 a. Explain briefly about the Intentional food additives with example.

OR

b. What is a food additive? Classify additives for antimicrobial preservartion.

14 a. How organic acids, sulphur and nitrogen compounds function as preservatives?

OR

b. Give an brief account on staphylococcus food intoxication

15 a. State and explain applications of vegetable based food products

OR

b. Explain about meat and meat products.

****