

MAHATMA GANDHI UNIVERSITY

**B Sc BOTANY (MODEL I, II, III) Core, Complementary & Vocational –
MODEL QUESTION PAPERS**

**MAHATMA GANDHI UNIVERSITY
B.Sc. BOTANY PROGRAMME
Semester II Core course 2
MICROBIOLOGY, MYCOLOGY AND PLANT PATHOLOGY
Model question paper**

Time: 3 hours

Max. marks: 60

Part A – Short answer questions

Answer any *ten* of the following

1. What is crustose lichen?
2. Name causative organism of blight of Paddy.
3. Name two poisonous mushrooms.
4. What are prions?
5. What is meant by food spoilage?
6. What is plectenchyma?
7. Give the scientific name of Yeast.
8. What are symptoms?
9. Give two examples of free living nitrogen fixing bacteria.
10. What are heteroecious fungi?
11. What are mesosomes?
12. What is meant by seed certification?

(10 x 1 = 10 marks)

Part B – Short essay questions

Answer any *six* of the following

13. What are biofertilizers? Give examples.
14. Write notes on clamp connections.
15. With the help of suitable diagram, explain the structure of bacteriophage
16. Explain the life cycle of *Albugo*.
17. Briefly describe the economic importance of bacteria.
18. Causative organism, symptoms and control measures of *Citrus canker*.
19. With the help of diagram explain the sexual reproduction in *Penicillium*
20. What is biological control? Explain its significance.
21. Write an account on the general characteristics and significance of lichens.

(6 x 5 = 30 marks)

Part C – Essay questions

Answer any *two* of the following

22. Describe the life cycle of *Puccinia* with suitable diagrams
23. Write an essay on transmission and dissemination of diseases
24. Describe the various genetic recombination methods in bacteria
25. Discuss the role played by fungi in agriculture, industry and medicine

(2 x 10 = 20 marks)

MODEL II (UG) BOTANY – VOCATIONAL COURSES

MAHATMA GANDHI UNIVERSITY

B.Sc. BOTANY (CBCSS) PROGRAMME – MODEL II (VOCATIONAL)

ENVIRONMENTAL MONITORING AND MANAGEMENT

Semester II

Vocational course 3

ENVIRONMENTAL MICROBIOLOGY

Time: 3 Hours

Max marks: 80

Part A - Short answer questions

Answer any *ten* of the following

1. What are exotoxins and endotoxins?
2. What are the differences between Gram positive and gram negative strains of bacteria?
3. What is the advantage of chlorinating water?
4. Give names of any *two* nitrogen fixing bacteria.
5. What are Acidophiles and Thermophiles?
6. Differentiate between hyphae and mycelium.
7. Name any two natural food preservatives.
8. What is Pasteurization?
9. What is a Zygosporangium?
10. What are Retroviruses?
11. Define Aerobiology
12. What are microbial antibiotics? Give examples?

(10 x 2 = 20 marks)

Part B - Short essay questions

Answer any *six* of the following

13. Give an account of water-borne diseases and its control
14. Write a note on microbial transformation of metals
15. Explain the mode of nutrition in fungi.
16. Explain the causes of food allergy.
17. Comment on microbial analysis of water quality.
18. Give an account of fermentation process used in industry.
19. Classify bacteria based on their flagellation with diagrams.
20. Give a brief account of bioindicators
21. Bring out the differences between parasitism and mutualism

(6 x 5 = 30 marks)

Part C - Essay questions

Answer any *two* of the following

22. Describe the various methods of preservation of Food
23. Explain the role of microorganisms in polluting water resources.
24. Write an essay on the interaction of soil microorganisms with plants.
25. With a labelled diagram explain the structure, type, multiplication and life cycle of Viruses

(2 x 15 = 30 marks)

MAHATMA GANDHI UNIVERSITY

B.Sc. BOTANY (CBCSS) PROGRAMME – MODEL II (VOCATIONAL)

ENVIRONMENTAL MONITORING AND MANAGEMENT

Semester II

Vocational course 4

ENVIRONMENTAL HYGEINE AND HUMAN HEALTH

Time: 3 Hours

Max marks: 60

Part A - Short answer questions

Answer any *ten* of the following

1. What is the difference between sanitation and hygiene?
2. Expand HIV
3. Name a disease caused by Silica dust
4. What are irritants?
5. Define LD₅₀
6. What is biological fatigue?
7. What is meant by Asphyxiants?
8. Name any four mosquito borne diseases.
9. What is Baggosis?
10. What is Blue Baby Syndrome?
11. What are systemic poisons?
12. What are Xenobiotics?

(10 x 1 = 10 marks)

Part B - Short essay questions

Answer any *six* of the following

13. Write a note on the transport of toxicants in the body.
14. Explain Dose- Response curve.
15. What are the basic needs and relationship of sanitation to health?
16. Write a note on the Epidemiological diseases due to pollution problems
17. Comment on the toxic effect due to the combination of chemicals.
18. Explain the safety measures to be considered in handling toxic materials.
19. What are the attributes of a healthy home environment?
20. How Cadmium and Mercury affect human health?
21. Differentiate biotransformation, bioaccumulation and bioconcentration.

(6 x 5 = 30 marks)

Part C – Essay questions

Answer any *two* questions.

22. Describe the steps in the layout of a garden?
23. What is pruning? Mention methods, purpose and precautions in pruning?
24. Discuss the characteristics and components of Italian garden.
25. Give an account of indoor gardening.

(2 x 15 = 30 marks)

MAHATMA GANDHI UNIVERSITY
B.Sc. BOTANY PROGRAMME – MODEL II (VOCATIONAL)
PLANT BIOTECHNOLOGY

Semester II

Vocational course 3

BO2VO4T03

MOLECULAR BIOLOGY

Model question paper

Time: 3 Hours

Max marks: 80

Part A - Short answer questions

Answer any *ten* questions

1. What are SNPs?
2. What is the general structure of B-DNA?
3. What is meant by Mutation?
4. What are Reverse transcriptases?
5. What is meant by a genetic code?
6. What are Molecular Markers?
7. What is euchromatin?
8. What are Oncogenes?
9. What are Minisatellites?
10. What are Exons?
11. What are Satellite DNAs?
12. What is meant by Polymorphism?

(10 x 2 = 20 marks)

Part B – Short essay questions

Answer any *six* questions

13. Explain apoptosis.
14. Explain DNA Transcription.
15. Briefly explain reverse transcription.
16. Explain the structural features of chromosome.
17. Briefly explain Lac Operon?
18. Write a short note on RAPD.
19. Briefly explain DNA replication.

20. Write a short note on tumor suppressor genes.
21. Describe the unique features of the telomere.

(6 x 5 = 30 marks)

Part C – Essay questions

Answer any *two* questions

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MAHATMA GANDHI UNIVERSITY
B.Sc. BOTANY (CBCSS) PROGRAMME – MODEL II (VOCATIONAL)
PLANT BIOTECHNOLOGY
Semester II Vocational course 4
FUNDAMENTALS OF ENZYMOLOGY AND RADIOBIOLOGY
Model question paper

Time: 3 Hours

Max marks: 60

Part A - Short answer questions

Answer any *ten* questions

1. What is a Km value?
2. What is half life period?
3. What is tracer technique?
4. Define buffer solutions.
5. Who proposed induced fit hypothesis?
6. Define enzyme? Who proposed the term enzyme?
7. What is Molality? Write its formula.
8. What are Isoenzymes?
9. Define turn over number.
10. What is GM counter?
11. What is autoradiography?
12. What are zymogens?

(10 x 1 = 10 marks)

Part B – Short essay questions

Answer any *six* questions

13. What is the significance of LDH?
14. Describe classifications of enzyme with examples and functions of each group.
15. List the precautions of handling radioactive isotopes.
16. Briefly describe the procedure for measurement of pH.
17. Briefly explain the type of enzymatic inhibition.
18. What is normality and molarity? Write its formula.
19. What is the significance of liquid scintillation counter?
20. Write the principle and application of autoradiography.
21. Briefly explain water as solvent system.

(6 x 5 = 30 marks)

Part C – Essay questions

Answer any *two* questions

22. Describe in detail the different instruments used for the measurement of radioactivity.
23. Briefly explain mechanism of enzyme action.
24. Briefly explain Michaelis-Menten constant and the factors affecting velocity of a reaction.
25. Give a concise account of preparation of buffers.

(2 x 10 = 20 marks)

MAHATMA GANDHI UNIVERSITY
B.Sc. BOTANY (CBCSS) PROGRAMME – MODEL III (DUAL CORE)
Semester II Core course Biotechnology 3
BIOPHYSICS AND INSTRUMENTATION
Model Question Paper

Time: 3 hours

Max. marks: 60

Part A – Short answer questions

Answer any *ten* of the following

1. What is meant by Phagocytosis?
2. Give examples for the major membrane phospholipids and glycolipids?
3. Rydberg's constant.
4. Define spectrum
5. Name different types of quantum numbers.
6. What is the difference between an influx and efflux?
7. What is hyperpolarization?
8. Which is the enzyme which help in Na⁺/K⁺ pump
9. What is Gibb's free energy (G)?
10. What do you meant by half-cell potential?
11. Write two applications of STEM
12. What is depolarization?

(10 x 1 = 10 marks)

Part B – Short essay questions

Answer any *six* of the following

13. Explain the construction and working of SEM and TEM
14. What is the resting potential of a membrane? Explain with a diagram.
15. Write down the Electrical model (equivalent) of cell membrane
16. Explain the principle and application of any two bioinstruments

17. Derive Bohr radius equation
18. Give a detailed note on spectrum and on different series of spectra with diagram.
19. Write a note on vector atom model with labeled diagram.
20. Explain the thermometric properties of different thermometers
21. Explain Passive electrical properties of cell with reference to Capacitance and Resistance
(6 x 5 = 30 marks)

Part C – Essay questions

Answer any *two* of the following

22. Give brief detail on Quantum numbers.
23. How an action potential is generated in neurons? Explain its synaptic transfer
24. What is a Bio potential? What are the different Bio potential measurement instruments?
25. Explain organization of plasma membrane and its different transport mechanisms.
(2 x 10 = 20 marks)