

[KY 025]

MAY 2011

Sub. Code: 9125

M.Sc. MOLECULAR VIROLOGY DEGREE EXAMINATION

FIRST YEAR

(For candidates admitted from 2009-2010 onwards)

PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY

Q.P. Code: 289125

Time : Three Hours

Maximum : 100 marks

Answer ALL questions

I. Elaborate on:

(2 x 20 = 40)

1. Enumerate the different methods of Sterilization. Write in detail about autoclave.
2. Explain in detail various levels of Biosafety in a microbiological laboratory.
Add a note on BSL 3.

II. Write notes on:

(10 x 6 = 60)

1. Guinea Pig.
2. Neutralization test.
3. Fluorescent Microscopy.
4. Decontamination.
5. Chromatography.
6. PCR.
7. Structure / Morphology of Viruses.
8. Hot air oven.
9. Continuous Cell lines.
10. Complement.

M.Sc. MOLECULAR VIROLOGY DEGREE EXAMINATION**FIRST YEAR****(For candidates admitted from 2009-2010 onwards)****PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY****Q.P. Code: 289125****Time : Three Hours****Maximum : 100 marks****Answer ALL questions in the same order.****I. Elaborate on:****Pages Time Marks
(Max.) (Max.) (Max.)**

- | | | | |
|---|----|---------|----|
| 1. How will you cultivate and purify virusus both in-vivo and in-vitro. | 17 | 40 min. | 20 |
| 2. Describe in detail the various pathways of complement system activation. | 17 | 40 min. | 20 |

II. Write notes on :

- | | | | |
|--|---|---------|---|
| 1. Containment facilities in a virology laboratory. | 4 | 10 min. | 6 |
| 2. Ultracentrifugation purification of viruses. | 4 | 10 min. | 6 |
| 3. Flowcytometry. | 4 | 10 min. | 6 |
| 4. Confocal microscope principle and application. | 4 | 10 min. | 6 |
| 5. Chromatography. | 4 | 10 min. | 6 |
| 6. Signal transduction pathways. | 4 | 10 min. | 6 |
| 7. Cell line maintenance media. | 4 | 10 min. | 6 |
| 8. Stem cells. | 4 | 10 min. | 6 |
| 9. Antibody structure and different immunoglobulin claims. | 4 | 10 min. | 6 |
| 10. Positive and Negative selection. | 4 | 10 min. | 6 |

M.Sc. MOLECULAR VIROLOGY DEGREE EXAMINATION**FIRST YEAR****(For candidates admitted from 2009-2010 onwards)****PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY****Q.P. Code: 289125****Time : Three Hours****Maximum : 100 marks****Answer ALL questions in the same order.****I. Elaborate on:**

	Pages (Max.)	Time (Max.)	Marks (Max.)
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- | | | | |
|---|----|---------|----|
| 1. Classify Hypersensitivity. Discuss in detail the mechanisms of Type I Hypersensitivity with examples. | 17 | 40 min. | 20 |
| 2. Define virus. Enumerate Baltimore Classification. Describe viral replication mechanisms with examples. | 17 | 40 min. | 20 |

II. Write notes on :

- | | | | |
|--|---|---------|---|
| 1. Polymerase chain reaction and its applications. | 4 | 10 min. | 6 |
| 2. Differences between T and B cells. | 4 | 10 min. | 6 |
| 3. Monoclonal antibodies and its uses. | 4 | 10 min. | 6 |
| 4. Systemic lupus erythematosus. | 4 | 10 min. | 6 |
| 5. Principle of dark ground microscopy. | 4 | 10 min. | 6 |
| 6. Primary lymphoid organs. | 4 | 10 min. | 6 |
| 7. Type IV Hypersensitivity. | 4 | 10 min. | 6 |
| 8. Detection of viral growth in tissue culture. | 4 | 10 min. | 6 |
| 9. Mechanisms of action of Disinfectants. | 4 | 10 min. | 6 |
| 10. Immunoelectrophoresis and its applications. | 4 | 10 min. | 6 |

[LD 1013]

OCTOBER 2013

Sub. Code: 9125

M.Sc. MOLECULAR VIROLOGY DEGREE EXAMINATION

FIRST YEAR

(For candidates admitted from 2009-2010 onwards)

PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY

Q.P. Code: 289125

Time : Three Hours

Maximum : 100 marks

Answer ALL questions

I. Elaborate on:

(2 x 20 = 40)

1. Discuss in detail the various methods of disinfection.
2. Enumerate on Tissue culture methodologies.

II. Write notes on:

(10 x 6 = 60)

1. Gaseous Sterilization.
2. Dark field Microscopy.
3. Bio-safety Level – 3.
4. Antibody structure.
5. Interferons
6. Graft Versus Host reaction.
7. Handling and maintenance of laboratory animals.
8. Ultracentrifugation.
9. Karyotyping.
10. Gel Electrophoresis.

M.Sc. MOLECULAR VIROLOGY DEGREE EXAMINATION

FIRST YEAR

(For candidates admitted from 2009-2010 onwards)

PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY

Q.P. Code: 289125

Time : Three Hours

Maximum : 100 marks

Answer ALL questions

I. Elaborate on:

(2 x 20 = 40)

1. Write a note on structure of Immunoglobulin with diagram. What are the classes of Immunoglobulins and enumerate on them?
2. Write in detail on replication of viruses. Write a note on protein biosynthesis and post translational modifications.

II. Write notes on:

(10 x 6 = 60)

1. Fluorescence microscopy – principles and applications.
2. Steam under pressure – application in sterilisation.
3. Karyotyping.
4. Media used in tissue culture.
5. Histocompatibility complex.
6. Antigen presenting cells.
7. Short note on stem cells and applications.
8. Immuno chromatography.
9. Real time PCR.
10. Suckling mice.

[LH 0415]

OCTOBER 2015

Sub. Code: 9125

M.Sc., MOLECULAR VIROLOGY
(for Candidates admitted from 2009-2010 Batch onwards)
FIRST YEAR
PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY

Q.P. Code : 289125

Time : Three hours

Maximum : 100 marks

I. Elaborate on :

(2 x 20 = 40)

1. Define and classify sterilization. Write in detail about sterilization by moist heat.
2. Write in detail invitro tissue culture methods. Include a note on nutritional requirements and cytopathic effects.

II. Write notes on :

(10 x 6 = 60)

1. Hot air oven.
2. Phase contrast microscopy.
3. Sterilization by radiation.
4. Monoclonal antibodies – Principles of application.
5. Requirements of molecular virology laboratory.
6. Flow cytometer.
7. Immuno surveillance.
8. Experimental models in Antigen Presenting Cells (APC).
9. Organ culture method.
10. Cell growth and differentiation factors.

[LJ 1016]

OCTOBER 2016

Sub. Code: 9125

**M.Sc. MOLECULAR VIROLOGY DEGREE EXAMS
FIRST YEAR
PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY**

Q.P. Code : 289125

Time: Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. What are Immunoglobulins? Write about the structure of antibody, different Immunoglobulin classes and their functions.
2. What is Transcription and Translation? Briefly give an outline about the Post-transcriptional and Post-Translational modifications.

II. Write notes on: **(10 x 6 = 60)**

1. Write a short note on electrophoresis.
2. What are the principles and application of fluorescent microscopy?
3. What are the signal transduction pathways?
4. Write a short note on major histocompatibility complex.
5. Write about the principle and application of sterilisation by radiation.
6. What is the structure and function of DNA?
7. Write about Flow cytometry.
8. What are the requirements of a virology laboratory?
9. How to maintain laboratory animals?
10. What is the difference between Hyperplasia and Hypertrophy?

[LK 0517]

MAY 2017

Sub. Code: 9125

**M.Sc. MOLECULAR VIROLOGY EXAMS
FIRST YEAR
PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY**

Q.P. Code : 289125

Time: Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Enumerate the various antigen antibody reactions and their uses in diagnostic microbiology.
2. Discuss the various methods for isolation of viruses in the laboratory.

II. Write notes on: **(10 x 6 = 60)**

1. B-Lymphocyte.
2. Immunoglobulin M.
3. Bio safety cabinet.
4. Sterilisation by autoclaving.
5. Interleukins.
6. Viral vaccines.
7. HEPA filters.
8. Louis Pasteur.
9. Antigen presenting cells.
10. Discusses the principle, procedure and applications of fluorescent microscopy.

[LL 1017]

OCTOBER 2017

Sub. Code: 9125

**M.Sc. MOLECULAR VIROLOGY EXAMS
FIRST YEAR
PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY**

Q.P. Code : 289125

Time: Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Classify the diseases caused by viruses in humans and discuss in detail the prophylaxis and therapy of viral infections.
2. Describe antigen-antibody reactions and write in detail about neutralization tests.

II. Write notes on: **(10 x 6 = 60)**

1. Immunoglobulin E.
2. Principle advantages and disadvantages of NMR spectroscopy for protein and nucleic acid studies.
3. Morphology and functions of lymphocytes.
4. Technique and applications of Immune histo-chemistry.
5. Spectrum of action and usage of Ethylene oxide.
6. Features of BSL-IV laboratory and the organisms that can be tested there.
7. Restriction endo-nucleases.
8. Explain with example – multiple reading frames.
9. Interferons.
10. 'T' cell independent antigens.

[LN 1018]

OCTOBER 2018

Sub. Code: 9125

**M.Sc. MOLECULAR VIROLOGY EXAMS
FIRST YEAR
PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY**

Q.P. Code : 289125

Time: Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Enumerate the antigen-antibody reactions and describe the principle and types of enzyme linked immunosorbent assay (ELISA).
2. List the various methods used in the laboratory for the diagnosis of viral infections. Explain in detail about the molecular methods.

II. Write notes on: **(10 x 6 = 60)**

1. Principle and production of Monoclonal antibodies.
2. Immuno-electrophoresis.
3. Interferons.
4. Plasma sterilization.
5. Viral transport medium with examples.
6. Bio medical waste management.
7. Mutation.
8. Name any three DNA, three RNA viruses and the diseases caused by them.
9. Enumerate any six vaccine preventable viral diseases.
10. Properties of virus.

[LP 1019]

OCTOBER 2019

Sub. Code: 9125

**M.Sc. MOLECULAR VIROLOGY EXAMS
FIRST YEAR
PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY**

Q.P. Code : 289125

Time: Three hours

Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Enumerate the components of a compound microscope. Discuss Electron microscopy in detail.
2. Discuss in detail viral growth requirements in vitro.

II. Write notes on: **(10 x 6 = 60)**

1. Membrane filtration techniques.
2. Experimental models in Antigen Presenting Cells.
3. Adult stem cells.
4. Sodium Hypochlorite.
5. Micro array.
6. Monoclonal antibody production.
7. Suckling mice.
8. Major histocompatibility complex.
9. Natural Killer Cells.
10. Abzymes.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0321]

MARCH 2021

Sub. Code: 9125

(OCTOBER 2020 EXAM SESSION)

M.Sc. MOLECULAR VIROLOGY

FIRST YEAR (From 2009-2010 onwards)

PAPER I – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY

Q.P. Code : 289125

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate notes on:

(2 x 20 = 40)

1. Describe the Epidemiology, Pathogenesis and lab diagnosis of Covid-19.
2. Applications of Genetic Engineering.

II. Write Short Notes on:

(10x6 = 60)

1. List the emerging viral infections
2. Disposal methods available for biomedical waste
3. NACO – Strategies in HIV testing
4. List any 3 RNA and 3 DNA viruses and the disease caused by them
5. Uses of Bacteriophages
6. Define Vector. Name any 4 vector borne diseases. Add a note on Dengue
7. Real Time PCR
8. Advantages of Using Hydrogen Peroxide as a sterilization agents
9. Monoclonal Antibodies
10. HEPA Filters

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[AHS 0222]

**FEBRUARY 2022
(OCTOBER 2021 EXAM SESSION)**

Sub. Code: 9125

M.Sc. MOLECULAR VIROLOGY

FIRST YEAR

(Candidates admitted from 2009-2010 onwards – Paper I)

(Candidates admitted from 2020-2021 onwards – Paper II)

PAPER I & II – BASIC MICROBIOLOGY, VIROLOGY AND IMMUNOLOGY

Q.P. Code : 289125

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate notes on:

(2 x 20 = 40)

1. Write in detail about Viral genetic modifications.
2. Discuss in detail laboratory diagnosis of viral infection and methods of detecting viral growth in cell culture.

II. Write Short Notes on:

(10x6 = 60)

1. List 3 enveloped and 3 non enveloped virus and the disease caused by them.
2. Lab diagnosis of Covid-19.
3. Interferons.
4. Enumerate the Vectors and viral illness transmitted by them.
5. Significance of P24 antigen assay .
6. Name any five Transfusion transmitted viral infections.
7. Features of Bio Safety level - II cabinet.
8. Bio Medical Waste Management.
9. Plasma Sterilization.
10. List the various chemical disinfections used in the hospital and its applications.
