April-2001

[KD 118] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

Branch IV — Microbiology

(Old/New/Revised Regulations)

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Describe the structure and functions of the bacterial cell wall with special reference to Gram negative bacteria. (25)

2. Describe the steps involved in the establishment of an antibody responses to an antigenic stimulus administered parenterally. (25)

3. Write briefly on : (5 × 10 = 50)

   (a) Flourescent Antibody Tests.

   (b) DNA Probes.

   (c) Tumor Antigens.

   (d) Hybridoma.

   (e) Continuous cultures.

November-2001

[KE 118] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

(Old/New/Revised Regulations)

Branch IV — Microbiology

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Time : Three hours Maximum : 100 marks

Answer ALL the questions.

1. Describe the different antimicrobial drug sensitivity tests and add a note on the techniques for the assay of antibacterial substances. (25)

2. What are ISOANTIGENS? Discuss the significance and describe the methods of detection of Rh antigens and Rh antibodies. (25)

3. Write briefly on : (5 × 10 = 50)

   (a) DNA probes.

   (b) Abnormal immunoglobulins.

   (c) Functional subsets of T–lymphocytes.

   (d) Cold sterilisation.

   (e) Bacterial Pigments.

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March-2002

[KG 118] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

(Old/New/Revised Regulations)

Branch IV — Microbiology

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Discuss the aggressive mechanisms of pathogenic bacteria to produce disease. (25)

2. List out the differences between active and passive immunity and write notes on "Antibody Therapy". (25)

3. Write briefly on : (5 x 10 = 50)

   (a) Polymerase chain reaction.

   (b) Primary immunodeficiency.

   (c) Quality control in the laboratory.

   (d) Bacterial taxonomy.

   (e) Specimen pooling.

———————.

September-2002

[KH 118] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch IV — Microbiology

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Discuss the mode of action of antibiotics and mechanism of development of antimicrobial drug resistance. (25)

2. Give a detailed account of 'antigen–presenting cells' and their role in immune response. (25)

3. Write briefly on : (5 × 10 = 50)

(a) HLA–Typing methods

(b) Cell wall structure of Gram–Negative Bacteria

(c) Monoclonal antibodies

(d) Coagglutination

(e) Type III hypersensitivity.

April-2003

[KI 118] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch IV — Microbiology

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Describe methods of demonstration of Bacterial cell wall and its organellae with a brief note on its role in influencing antibiotic action. (25)

2. Enumerate the mechanisms of gene transfer with emphasis of genetic engineering in the diagnosis of disease? (25)

3. Write briefly on : (5 × 10 = 50)

   (a) Opsonisation

   (b) Immunofluorascence

   (c) Alpha-fetoprotein

   (d) Lymphokines

   (e) HLA typing.

[KJ 118] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch IV — Microbiology

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Time : Three hours
Theory : Two hours and forty minutes
M.C.Q. : Twenty minutes

Maximum : 100 marks
Theory : 80 marks
M.C.Q. : 20 marks

M.C.Q. must be answered **SEPARATELY** on the Answer Sheet provided as per the instructions given on the first page of M.C.Q. Booklet.

Answer ALL questions.

Draw suitable diagrams wherever necessary.

1. Classify chemical disinfectants. Describe the mode of action, applications and standardisation of disinfectants. (15)

2. Describe in detail the complement activation cascade. Add a note on deficiencies of complement system. (15)

3. Write short notes on : (10 × 5 = 50)

(a) Immuno electroblot techniques.

(b) Organisation of central sterilisation department.

(c) Limulus test.

(d) Cells involved in immunity.

(e) Electron microscope.

(f) ESBL.

(g) Mutation.

(h) Anti idiotype antibodies.

(i) Anaerobic culture methods.

(j) Secretory immunity.

[KK 118] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch IV — Microbiology

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

A. Essay : (2 × 15 = 30)

(1) Discuss the type 1 hypersensitivity reactions.

(2) Describe the different modes of transmission of genetic material.

B. Write short notes on : (10 × 5 = 50)

(1) Bacterial Capsule

(2) ELISA

(3) Bacterial growth curve

(4) Transport media

(5) Autoclave

(6) IgE

(7) Mechanism of autoimmunity

(8) Artificial immunity

(9) Difference between T cells and B cells

(10) Radial immuno diffusion.

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[KL 118] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch IV — Microbiology

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

(1) Discuss the structure of Bacterial cell wall and correlate the features with antibiotic action.

(2) Discuss the complement system. Mention the clinical syndromes associated with genetic deficiencies of complement components.

II. Write short notes on : (10 × 5 = 50)

(a) Macrophage.

(b) Gas liquid chromatography.

(c) Rapid identification methods used in Bacterial disease.

(d) Immuno blot techniques.

(e) Use of Nude mice in Research.

(f) HLA system.

(g) Haemagglutination.

(h) IgG and its clinical application.

(i) Type III hypersensitivity.

(j) Ionic radiation sterilisation.

[KM 118] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch IV — Microbiology

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (2 x 15 = 30)

(1) Write briefly about the surface structures that contribute to the virulence of Bacteria.

(2) Define the Agglutination reaction. Discuss the different types of agglutination reactions and their clinical applications.

II. Write short notes on : (10 x 5 = 50)

(a) Differences between active and passive immunity.

(b) Immunological tolerance.

(c) Opsonins.

(d) Super antigens.

(e) Mechanisms of autoimmunisation.

(f) Sterilisation by radiation.

(g) E-Test

(h) Electron microscope.

(i) Transfer factor.

(j) DNA Microarrays and its applications.

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[KO 118] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

Branch IV — Microbiology

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay : (2 × 15 = 30)

(1) Describe the mechanism of action of common disinfectants used in large hospital. Add a note on testing the efficacy of chemical disinfectants.

(2) Define immune response. Describe cell mediated immune response in detail and the laboratory methods for detection of cellular immune response.

II. Write Short notes on : (10 × 5 = 50)

(a) Combination testing of antibiotics.

(b) Sterilization indicators.

(c) Bacterial toxins.

(d) Electron microscopy.

(e) Phagocytosis.

(f) Secretary immunoglobulin.

(g) Mutation.

(h) Typing methods for epidemiological analysis of microorganisms.

(i) Complement.

(j) Plasmids.

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[KP 118] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

Branch IV — Microbiology

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

Essay :

I. Classify congenital immune deficiency diseases. Describe the mechanisms involved in absolute 'B' cell immune deficiency. Add a note on its laboratory diagnosis. (20)

II. (a) Describe the various methods of transfer of genetic material in bacteria. (15)

(b) Discuss extended spectrum β lactamases. Describe the methods of their detection. (15)

III. Write short notes on : (6 × 5 = 30)

(a) Phase contrast microscope – principle and uses.

(b) Structure and functions of pili.

(c) Apoptosis – Definition and mechanisms.

(d) T – cell receptor.

(e) Pathogenesis of Arthus reaction.

(f) Principle and uses of sterilization by radition in the laboratory.

[KQ 115] **Sub. Code : 2015**

M.D. DEGREE EXAMINATION.

Branch IV — Microbiology

GENERAL MICROBIOLOGY AND IMMUNOLOGY

Common to

Paper I — (Old/New/Revised Regulations)
(Candidates admitted from 1988-89 onwards)

And

Paper I — (For candidates admitted from 2004-2005 onwards)

Time : Three hours — Maximum : 100 marks

Theory : Two hours and forty minutes — Theory : 80 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Long Essay :

1. Describe the mechanisms of antimicrobial resistance in Bacteria. Discuss methods of determining the antimicrobial resistance of Bacteria. (20)

2. (a) Discuss the production, properties and uses of monoclonal antibodies. (15)

(b) What is auto immunity? Discuss theories of autoimmunity. Add a note on systemic autoimmune diseases. (15)

II. Write Short notes on : (6 × 5 = 30)

(a) Dark ground microscope – principle and uses.

(b) Chemical disinfectants.

(c) Elisa test.

(d) Methods of Anaerobic cultivation.

(e) Laboratory acquired infections.

(f) HLA typing.

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[KR 117] **Sub. Code : 2014**

M.D. DEGREE EXAMINATION.

Branch IV – Microbiology

GENERAL MICROBIOLOGY AND IMMUNOLOGY

Common to

Paper I — (Old/New/Revised Regulations)

(Candidates admitted upto 2003–04)

And

Paper I — (For candidates admitted from 2004–2005 onwards)

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay questions :

(1) What are different methods used in the Laboratory for measurement of Antigen and Antibody reaction. Write on CLIA and Immunochromatographic tests. (10 + 10 = 20)

(2) Discuss in detail the virulence determinants of bacterial pathogenicity. (15)

(3) Describe the Complement pathway. Discuss its role in heath and disease. (15)

II. Write short notes on : (6 × 5 = 30)

(a) Major Histocompatibility Complex

(b) Therapeutic Drug Monitoring

(c) Adoptive Immunity

(d) Aldehyde disinfectants

(e) Anaphylaxis

(f) ESBL detection in the laboratory.

MARCH 2008

[KS 117] **Sub. Code : 2014**

M.D. DEGREE EXAMINATION.

Branch IV— Microbiology

Paper I — GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code : 202014

Common to all candidates

Time : Three hours Maximum : 100 marks

Answer ALL questions.

Draw diagrams wherever necessary.

I. Essay : $(2 \times 20 = 40)$

1. Discuss Laboratory methods and strategies for Antimicrobial Susceptibility Testing. Add a note on automated antimicrobial test systems and alternative tests for enhancing resistance detection. (20)

2. Discuss Immunochemical Methods used for Antigen detection with examples. (20)

II. Write Short notes on : $(10 \times 6 = 60)$

(1) Bacterial Appendages of virulence.

(2) Plasma Sterilizers.

(3) Alternate Complement Pathway.

(4) Louis Pasteur.

(5) Gene transfer in bacteria.

(6) Mechanism and Mediators of Anaphylaxis.

(7) Monoclonal Antibodies.

(8) T Cell proliferation and differentiation.

(9) HLA Typing.

(10) Passive Immunity.

March 2009

[KU 117] **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

Branch IV – MICROBIOLOGY
(Common to all candidates)

Paper I – GENERAL MICROBIOLOGY AND IMMUNOLOGY
Q.P. Code : 202014

Time : Three hours **Maximum : 100 marks**

Draw suitable diagram wherever necessary.
Answer ALL questions.

I. Essay questions : **(2 x 20 = 40)**

1. Enumerate laboratory acquired infections. Classify biological agents based on biohazard. Discuss biosafety measures.

2. Define immunomodulators. Discuss their role as therapeutic agents.

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

1. Gene transfer.
2. Fluorescent microscope.
3. Interleukins.
4. Superantigens.
5. Bacterial toxins.
6. Anaerobic culture methods.
7. HLA typing.
8. Heterophile agglutination tests.
9. Bacteriological examination of water.
10. Theories of immune response.

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September 2009

[KV 117] **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

Branch IV – MICROBIOLOGY
(Common to all candidates)

Paper I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code : 202014

Time : Three hours **Maximum : 100 marks**

Draw suitable diagram wherever necessary.
Answer ALL questions.

I. Essay questions : **(2 x 20 = 40)**

1. List the antibiotics inhibiting cell-wall synthesis. Write in detail the mechanisms of resistance and laboratory methods of resistance detection.

2. Classify T cells. Write in detail the development, activation, selection, biological functions and various T cell assay methods.

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

1. Antigen presenting cells.
2. MHC and diseases.
3. Acute phase reactants
4. Graft-versus host reaction
5. Immune tolerance
6. Bacterial cell-wall
7. Plasmid
8. DNA probe
9. Mutation
10. HLA typing

*****

March 2010

[KW 117] **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

Branch IV – MICROBIOLOGY
(Common to all candidates)

Paper I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code : 202014

Time : Three hours **Maximum : 100 marks**

Draw suitable diagram wherever necessary.
Answer ALL questions.

I. Essay questions : **(2 x 20 = 40)**

1. Describe the maturation and functions of CD4 Lymphocytes. Discuss the methods of counting them.

2. Describe the virulence determinants of bacterial pathogenicity.

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

1. DNA probes.
2. Major histocompatibility complex.
3. Transposons.
4. Phase contrast microscopy.
5. Measurement of antigen antibody reactions.
6. Redox – potential.
7. Moist heat sterilisation.
8. Anaerobic culture methods.
9. Allograft.
10. Adoptive immunity.

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September 2010

[KX 117] **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

Branch IV – MICROBIOLOGY

Paper I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

(Common to all candidates)

Q.P. Code : 202014

Time : Three hours **Maximum : 100 marks**

Draw suitable diagram wherever necessary.
Answer ALL questions.

I. Essay questions : **(2 X 20 = 40)**

1. Discuss the various methods of transfer of genetic material in bacteria.

2. Mention various Antigen-Antibody reactions. Discuss in detail about ELISA test.

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

1. Louis Pasteur.
2. Application of U.V. Microscope in Microbiology.
3. Diagram of Bacterial spore.
4. Diagram of Koch & Arnold Sterilizer.
5. Different types of fimbriae.
6. Cold sterilization.
7. Adoptive immunity.
8. Sensitivity and specificity.
9. Antibiotics inhibiting cell wall synthesis.
10. T- Cells.

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MAY 2011

[KY 117] **Sub. Code: 2014**

M.D. DEGREE EXAMINATION
BRANCH IV – MICROBIOLOGY
GENERAL MICROBIOLOGY AND IMMUNOLOGY
Q.P. Code : 202014

Time : 3 hours **Maximum : 100 marks**
(180 Min)

Answer ALL questions in the same order.

	Pages (Max.)	Time (Max.)	Marks (Max.)
I. Essay:			
1. Describe the various staining techniques used to demonstrate different components of the bacterial cell.	6	15	10
2. Describe in detail antigen processing and presentation by professional antigen presenting cells.	6	15	10
II. Short Questions:			
1. Preservation of bacterial culture.	3	8	5
2. Recombinant plasmids.	3	8	5
3. Nongenetic origin of drug resistance.	3	8	5
4. Antigenic variations of salmonella.	3	8	5
5. Anaerobic culture methods.	3	8	5
6. Ig A_1 protease.	3	8	5
7. Glycopeptides.	3	8	5
8. Immunofluorescence.	3	8	5
III. Reasoning Out:			
1. In exponential phase bacterial growth is progressively slowed down.	4	10	5
2. Moist heat is more lethal than dry heat.	4	10	5
3. SRBC rosette is formed by Tcell.	4	10	5
4. Superantigen stimulation can lead to multisystem dysfunction.	4	10	5
IV. Very Short Answers :			
1. Enzymes that attack cell walls.	1	4	2
2. Immuno chromatographic tests.	1	4	2
3. Mitogens.	1	4	2
4. Transfer factor.	1	4	2
5. Acute phase proteins.	1	4	2
6. Complex hapten.	1	4	2
7. Unique standard feature of IgM.	1	4	2
8. Idiotype.	1	4	2
9. Ouchterlony's procedure.	1	4	2
10. Interleukin-2.	1	4	2

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April 2012

[LA 117] **Sub. Code: 2014**

M.D. DEGREE EXAMINATION
BRANCH IV – MICROBIOLOGY
PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY
Q.P. Code : 202014

Time : 3 hours(180 Min) **Maximum : 100 marks**

Answer ALL questions in the same order.

	Pages (Max.)	Time (Max.)	Marks (Max.)
I. Essay:			
1. Classify culture Medias. Discuss in detail about preparation and various applications of Blood agar.	9	15	10
2. List the antigen antibody reactions. Enumerate the characters of antigen antibody reaction and discuss in detail about Immuno fluorescence tests	9	15	10
II. Short Questions:			
1. Enumerate Koch's Postulates.	3	8	5
2. Discuss the principles and uses of Phase Contrast Microscope	3	8	5
3. Describe Bacterial Capsule and staining methods to demonstrate it.	3	8	5
4. Explain the role of Thymus in development of immunity.	3	8	5
5. Enumerate Transport Medias and explain why it is needed.	3	8	5
6. Discuss the principle and uses of Complement fixation test.	3	8	5
7. Explain the maturation and discuss the functions of B – Lymphocytes.	3	8	5
8. Enumerate the Mechanisms of Auto-immunity.	3	8	5
III. Reasoning Out:			
1. In Griffith experiment, mice died when injected with mixture of live non-capsulated Pneumococci (R) and heat killed capsulated Pneumococci (S) neither of which were fatal when injected separately – Explain.	5	10	5
2. Morphology of viruses cannot be visualized by light compound microscopy.	5	10	5
3. Why there is long lag phase in Primary Immune Response.	5	1 0	5
4. Quantitative VDRL test was not reactive in lower dilutions but reactive in higher dilutions – explain.	5	10	5
IV. Very Short Answers :			
1. What is the process of DNA replication in Bacteria is called as?	1	4	2
2. What are transposons?	1	4	2
3. Name the four phases of bacterial growth cure.	1	4	2
4. Mention the melting and solidifying temperature of agar-agar.	1	4	2
5. Name two gaseous disinfectant.	1	4	2
6. Give an example for Premunition immunity.	1	4	2
7. What is a Xenograft?	1	4	2
8. Give one example for super antigen.	1	4	2
9. What is the function of Interleukin 2 ?	1	4	2
10. List two tumor specific antigens.	1	4	2

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(LC 117) **APRIL 2013** **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER – I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code : 202014

Time: Three Hours **Maximum: 100 marks**

I. Essay: **(2X10=20)**

1. Describe the Genotypic variations in Bacteria with special reference to Drug resistance.
2. Describe the mechanisms of Innate immunity with special reference to soluble molecules and cell types involved in innate immunity.

II. Short Questions: **(8X5=40)**

1. Koch's postulates and Koch's phenomenon
2. Aldehydes used in Sterilisation
3. Stock culture techniques
4. Dark field microscopy - principle and uses
5. Immunofluorescence - types and uses
6. Alternative pathway of complement
7. Null cells and Natural killer cells
8. Immunology of Systemic lupus erythematosus

III. Reasoning Out: **(4X5=20)**

1. Loss of the capsule render the bacterium avirulent.
2. In Kliglers iron agar, blackening of the medium occurs when some bacteria are inoculated.
3. In Brucella agglutination test, several dilutions of the serum tested in hypertonic saline.
4. When an Rh negative women carries an Rh positive fetus, there is a chance for Hemolytic disease of the new born.

IV. Very Short Answers: **(10X2=20)**

1. Antony von Leeuwenhoek
2. Pasteurisation
3. Paradoxical carriers
4. Quellung reaction
5. Indole Test
6. Idiotopes
7. Passive Agglutination
8. Mediators of Anaphylaxis
9. Peripheral lymphoid organs
10. Transport media

*****

[LD 117] **OCTOBER 2013** **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code : 202014

Time: Three Hours **Maximum: 100 marks**

I. Essay: **(2 x 10 = 20)**

1. Classify methods of sterilization. Discuss in detail physical methods of sterilization that can be used in tertiary care centre.
2. Discuss in detail mechanism by which bacteria evade immune response.

II. Short Questions: **(8 x 5 = 40)**

1. Passive immunity.
2. Contributions of Joseph Lister.
3. Coomb's test.
4. Major histocompatibility complex.
5. Phase contrast microscopy.
6. Monoclonal antibodies.
7. Type I hypersensitivity.
8. Beta-lactam antibiotics.

III. Reasoning Out: **(4 x 5 = 20)**

1. Loefflers' serum slope should not be sterilized by autoclaving.
2. Staphylococcus aureus produces localized infections.
3. Capsular serotyping of Streptococcus pneumoniae is essential.
4. Obligate anaerobes cannot grow in presence of oxygen.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Rheumatoid arthritis.
2. Plasmids.
3. Immunochromatographic test.
4. Toxoid vaccines.
5. E-test.
6. Anaerobic culture methods.
7. Islam's media
8. Molecular beacon.
9. Universal precautions.
10. Motility in bacteria.

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(LE 117) **APRIL 2014** **Sub. Code:2014**

M.D. DEGREE EXAMINATION

BRANCH IV - MICROBIOLOGY

PAPER - I - GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P.Code: 202014

Time: Three Hours **Maximum: 100 marks**

I. Essay Questions: **(2X10=20)**

1. Define Sterilization, Discuss about the Principle, Procedure and uses of Autoclave.

2. List the classes of Immunoglobulin, Describe the Structure and Properties of Immunoglobulin G (IgG).

II. Short Questions: **(8X5=40)**

1. Louis Pasteur.
2. Bacterial flagella.
3. Anaerobic culture methods.
4. Transformation.
5. Western blotting.
6. Bio-film.
7. Artificial passive immunity.
8. Delayed Hypersensitivity.

III. Reasoning Out: **(4X5=20)**

1. In Dark field microscopy organisms are seen as bright illuminated particles against dark background.
2. Some bacteria appears pink in colour after staining by Ziehl Neelsen staining.
3. Haptens are not capable of inducing antibodies.
4. Immunoglobulin E (IgE) is responsible for anaphylactic type of Hypersensitivity.

IV. Very Short Answers: **(10X2=20)**

1. Immunoelectron Microscopy.
2. Transposons.
3. Inspissation.
4. Enrichment medium.
5. Koch’s postulates.
6. Herd Immunity.
7. Xenograft.
8. Principle of phase contrast microscopy.
9. Negative staining.
10. Numerical taxonomy.

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(LF 117) **OCTOBER 2014** **Sub.Code:2014**

M.D. DEGREE EXAMINATION
BRANCH IV - MICROBIOLOGY
PAPER I - GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P.Code: 202014

Time: Three Hours **Maximum: 100 marks**

I. Essay Questions: **(2 x 10 = 20)**

1. Describe the different anti microbial drug sensitivity tests and discuss the techniques of the assay of antibacterial substances.
2. Describe the mechanism of transplant rejection and the methods of tissue typing and matching and add a note on prevention of Graft Rejection.

II. Short Questions: **(8 x 5 = 40)**

1. Microbial pathogenicity.
2. Fimbriae in haemagglutination.
3. Plasmids.
4. Fc Receptors.
5. Apoptosis.
6. Immunomodulators.
7. Mechanism of gene transfer.
8. Target cells and actions of IL-1.

III. Reasoning Out: **(4 x 5 = 20)**

1. Report all mishaps with infective material to the safety officer.
2. Conglutinin causes clumping of cells or particles coated with complement a process know as conglutination.
3. Zone electrophoresis is useful in the diagnosis of human paraprotein disorders like Multiple myeloma.
4. Heterotrophs require organic carbon for growth.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Chemostat.
2. Lipopolysacharides.
3. Mitogens.
4. Pre-B cells.
5. Fab fragment.
6. Thermal death time.
7. Dot Blot Hybridisation.
8. Tests for Ig E antibodies.
9. Antigens on tumour cells.
10. Ignaz Semmelweis.

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[LG 117] **APRIL 2015** **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code : 202014

Time: Three Hours **Maximum: 100 marks**

Answer ALL questions

I. Essay: **(2 x 10 = 20)**

1. Describe all the staining methods used in the identification of bacteria.
2. Define immune modulators and discuss their therapeutic applications.

II. Short Questions: **(8 x 5 = 40)**

1. Polarisation microscopy.
2. Flow cytometry.
3. Transposons.
4. Radioimmunoassay.
5. Genetic mapping.
6. Methods of detection of biofilms.
7. Quality control.
8. Biosafety in the laboratory.

III. Reasoning Out: **(4 x 5 = 20)**

1. ABO hemolytic disease can occur even in first child of 'O' group mothers.
2. Hyperacute rejection occurs usally within the first few hours of transplantation.
3. 'O' antigen detection is done only for Salmonella typhi not for Salmonella paratyphi A and B in widal test.
4. Ultrasonic devices are not reliable for regular use in disinfection or sterilisation.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Welch method of staining.
2. Xenograft.
3. Chimeric antibodies.
4. Tyndallization.
5. Oxidation-Fermentation test.
6. E test.
7. Cell wall inhibitors.
8. ELISPOT Assay.
9. Rh incompatibility.
10. Western blot.

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(LI 117) APRIL 2016 **Sub. Code:2014**

M.D. DEGREE EXAMINATION
BRANCH IV – MICROBIOLOGY
PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY
Q.P.Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay Questions: **(2 x 10 = 20)**

1. Describe bacterial cell wall. Add a note on the demonstration of cell wall.
2. Define vaccine? Describe the advantages of active vaccination over passive vaccination with examples. Write in detail about vaccine delivery systems.

II. Short Questions: **(8 x 5 = 40)**

1. Koch's postulates and Koch's phenomenon.
2. MHC restriction.
3. Presumptive coliform count.
4. Real time PCR.
5. HPLC (High Pressure Liquid Chromatography).
6. Competitive ELISA.
7. Gut associated Lymphoid Tissue.
8. Transferable drug resistance.

III. Reasoning Out: **(4 x 5 = 20)**

1. Why Mueller Hinton agar is used in antimicrobial susceptability testing?
2. Oxygen is toxic to anaerobic bacteria. Explain the reason?
3. What is the role of restriction endonucleases in molecular genetics?
4. Multiple vaccines like DPT are given simultaneously. What is the mechanism behind it?

IV. Very Short Answers: **(10 x 2 = 20)**

1. Mesosomes.
2. Define psychrophilic bacteria with example.
3. Function of Tumour Necrosis Factor α.
4. Name Four scientists who were awarded Nobel Prize for their work in immunology?
5. Write the immunology behind waterhouse friderichsen syndrome.
6. Spaulding's classifications in sterilization.
7. Freund's complete adjuvants.
8. Immunological surveillance.
9. What is T antigen?
10. Eichwald-silmser effect.

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(LJ 117) OCTOBER 2016 **Sub. Code:2014**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P.Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay Questions: **(2 x 10 = 20)**

1. Describe in detail the virulence factors determining bacterial pathogenicity.
2. Enumerate Antigen antibody reactions and discuss Immunofluorescence in detail.

II. Short Questions: **(8 x 5 = 40)**

1. Electron microscopy.
2. Plasma sterilization.
3. HLA typing.
4. Monoclonal Antibodies.
5. Graft versus host reaction.
6. Ig E.
7. Blotting Techniques.
8. L forms.

III. Reasoning Out: **(4 x 5 = 20)**

1. Foetal loss in Rh incompatability increases with repeated pregnancy.
2. Hyperacute rejection occurs usually within the first few hours of transplantation.
3. Clinically proven case of syphilis but qualitative VDRL nonreactive.
4. Sharp instruments and oil are not sterilized in autoclave.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Methods of testing disinfectant.
2. Redox potential.
3. Transport media.
4. Sterilisation controls in autoclave.
5. Psychrophiles.
6. Hapten.
7. Waldenstrom’s macroglobulinemia.
8. Nephelometry.
9. Name blood transfusion related infections.
10. Allograft.

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(LK 117) MAY 2017 **Sub. Code:2014**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P.Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay Questions: **(2 x 10 = 20)**

1. Explain the mechanism of action of antibiotics on bacteria. Write in detail the development of antibiotic resistance in bacteria.
2. Write in detail about tumour Immunology and immunotherapy of cancer.

II. Short Questions: **(8 x 5 = 40)**

1. Fluorescent Microscopy.
2. ETO sterilization.
3. Immunomodulators.
4. Major Histocompatability complex.
5. Preservation of stock cultures.
6. Cytokines.
7. Genetic mapping.
8. Plasmids.

III. Reasoning Out: **(4 x 5 = 20)**

1. Hormones, sutures and disposables are sterilized by ionizing radiation.
2. Acute rejection occurs within one week of transplantation.
3. Widal test is negative in the first week of enteric fever.
4. Still birth is more common in pregnant mother with early syphilis than with late syphilis.

IV. Very Short Answers: **(10 x 2 = 20)**

1. Jumping genes.
2. Cold sterilization.
3. Premunition immunity.
4. Freeze etching.
5. Flash method Pasteurisation.
6. Anoxomat.
7. Detection of endotoxins.
8. Super antigens.
9. Coomb's test.
10. Isograft.

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(LL 117) OCTOBER 2017 **Sub. Code:2014**

M.D. DEGREE EXAMINATION
BRANCH IV – MICROBIOLOGY
PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY
Q.P.Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay Questions: **(2 x 10 = 20)**

1. Describe the mechanism of anti microbial resistance in bacteria. Discuss the methods of determining the anti microbial resistance of bacteria.
2. Define immune response. Describe cell mediated immune response in detail and the lab methods for detection of cellular immune response.

II. Short Questions: **(8 x 5 = 40)**

1. Special components of gram negative cell wall.
2. Major histocompatibility complex.
3. Composition of immunoglobulin classes.
4. B cell synthesis, maturation and uses.
5. Immunotherapy of cancer.
6. Gas sterilisation.
7. Organisation of central sterilisation department.
8. Flourescent microscope.

III. Reasoning Out: **(4 x 5 = 20)**

1. IL-6 is a cytokine with multiple biological activities on a variety of cells.
2. Antibodies frequently coat erythrocytes but fail to form the necessary lattice to produce agglutination.
3. Ideal gelling agent for most microbial media is agar.
4. When an inoculam of cells from pure culture introduced into suitable nutrient medium and incubated, almost all cells grow at a very rapid rate?

IV. Very Short Answers: **(10 x 2 = 20)**

1. Prokaryotic nucleoid.
2. Adjuvants.
3. List the secretary product of macrophages.
4. Mention 4 proteins of Ig gene superfamily.
5. Clinical applications of flow cytometry.
6. Tyndalisation.
7. Paul Ehrlich.
8. Clonal selection.
9. Air filters.
10. Source of HLA typing sera.

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(LM 117) MAY 2018 **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P.Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe the various virulence mechanisms exhibited by pathogenic bacteria. Explain how bacterial drug resistance contributes to virulence?

2. Discuss the immunological aspects of organ transplantation. Brief about HLA typing and add a note on immunomodulators.

II. Short notes: **(10 x 5 = 50)**

1. Methods for Preservation of Microorganism.
2. Interpretation of Triple sugar iron agar.
3. Bacterial spores.
4. Modifications of Gram staining.
5. Quarum sensing mechanism.
6. IgA.
7. Heterophile agglutination test.
8. Alternate complement pathway.
9. Immunodiffusion test.
10. ADCC.

III. Reasoning Out: **(4 x 5 = 20)**

1. Among the chemical disinfectant solutions, Gluteraldehyde preferred for Bronchoscope sterilization.
2. Conjugation method of Gene transfer is more common than Transduction in Gram negative Bacterial species.
3. Blood samples are subjected to bacterial culture only after 1:10 dilution.
4. Membrane filters are not used for Sterilization purpose.

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(LN 117) OCTOBER 2018 **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Write a brief essay on quality control in clinical microbiology.
2. Discuss the advances in immunology and its role in the diagnosis and treatment of various diseases.

II. Short notes: **(10 x 5 = 50)**

1. Lysis centrifugation technique.
2. Cosmid.
3. Therapeutic drug monitoring.
4. Aldehyde disinfectant.
5. DNA chips.
6. Heat shock protein.
7. Premunition.
8. Immunisation against non infectious diseases.
9. Scope and limitations of immunological study on TWINS.
10. Quality control for Autoclave method of sterilisation.

III. Reasoning Out: **(4 x 5 = 20)**

1. Role of booster dose in immunization.
2. Why generation time is different in different bacteria?
3. Super antigen stimulation can leads to multisystem dysfunction.
4. Moist heat is more lethal than dry heat.

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(LO 117) MAY 2019 **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Discuss the different methods of microbiological surveillance of Operation Room. Write a protocol for Operation Room surveillance. Add a note on Operation Room sterilization.

2. Discuss the autoantibodies detected in various Connective Tissue disorders. Write the different methods of detection of autoantibodies and interpret them clinically.

II. Short notes: **(10 x 5 = 50)**

1. Different generations of culture media.
2. Stamp's modified Ziehl Neelsen's stain.
3. T cell receptors.
4. Resistotyping.
5. Chimeric antibodies.
6. Detection of endotoxins in therapeutic solutions.
7. Biofilm.
8. Applications of immunoglobulins.
9. Lac operon.
10. Theories of immune response.

III. Reasoning Out: **(4 x 5 = 20)**

1. Disposal of formalinised anatomical tissues is under regulation.
2. Low bacterial count in urine is significant in certain conditions.
3. Phenolic disinfectants are not used in infant nurseries - Why?
4. Beta lactam and Beta lactamase inhibitor antibiotics are used in Urinary tract infections caused by ESBL producing bacteria.

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(LP 117) OCTOBER 2019 **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe the structure and functions of bacterial cell organelles. Discuss in detail about the antigenic and virulence mechanisms of these cell organelles.

2. Write in detail about production, storage and uses of Monoclonal antibodies.

II. Short notes: **(10 x 5 = 50)**

1. L forms.
2. Ames test.
3. Biological Indicators of Sterilization.
4. Flagella staining.
5. Confocal Microscopy.
6. Hyperacute Graft rejection.
7. IgM.
8. Toll like receptors (TLR).
9. NK cells.
10. Complement fixation test.

III. Reasoning Out: **(4 x 5 = 20)**

1. Autoclove sterilization process is not suitable for Lowenstein Jensen medium.
2. Catalase activity of bacteria is not performed with colonies on Blood agar.
3. CLED medium is preferred over MacConkey for urinary pathogens.
4. Spore forming bacterium used as biological indicators of sterilization.

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[LQ 117] AUGUST 2020 **Sub. Code: 2014**

(MAY 2020 SESSION)

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Explain in detail about the various biosafety levels and exposure control plan in the microbiology laboratory.
2. Classify immunodeficiency diseases. Write in detail on Primary immunodeficiency disorders.

II. Short notes: **(10 x 5 = 50)**

1. Mailing Biohazardous materials.
2. Antigen presenting cells.
3. Subunit vaccines.
4. Heterophile antibodies.
5. Superantigens.
6. Bacterial cell wall.
7. Flow cytometry.
8. Pathogenicity islands.
9. Maintenance of stock culture.
10. Immunomodulators.

III. Reasoning Out: **(4 x 5 = 20)**

1. Procalcitonin is more reliable than C-reactive protein.
2. Three consecutive samples are required in Sub-acute Bacterial endocarditis.
3. Oxidase test should not be performed from colonies in sugar containing media.
4. Pregnancy as an example of Immunological tolerance.

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[LS 117] NOVEMBER 2020 **Sub. Code: 2014**

(OCTOBER 2020 SESSION)

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Elaborate on Non-PCR based amplification methods.
2. Describe the mechanism of transplant rejection. Add a note on tissue typing methods and cross-matching.

II. Short notes: **(10 x 5 = 50)**

1. Fluorescent Microscopy.
2. Plasma sterilization.
3. Gene transfer.
4. Special stains in Bacteriology.
5. DNA Microarray.
6. Hashimoto's thyroiditis.
7. CSSD.
8. Anti-idiotype antibodies.
9. NK cells.
10. Interleukins.

III. Reasoning Out: **(4 x 5 = 20)**

1. Use of Biphasic medium in Blood culture.
2. Citrated Plasma is not suitable for Coagulase test.
3. Role of Blocking antibodies in cancer treatment.
4. HLA B-27 in diagnosis of auto-immune disease.

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[MD 0721] JULY 2021 **Sub. Code: 2014**

(MAY 2021 SESSION)

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Explain the mechanism of action of antibiotics on bacteria. Write in detail about the development of antibiotic resistance in bacteria.
2. Describe the mechanism of transplant rejection and the method of tissue typing and cross matching and add a note on the prevention of graft rejection.

II. Short notes: **(10 x 5 = 50)**

1. Bacterial pigments.
2. Oncogenes.
3. Alternate complement pathway.
4. Maintenance of bacterial stock cultures.
5. Interferons.
6. BOD incubator.
7. Abnormal immunoglobulins.
8. Bacterial typing methods
9. HEPA filters.
10. Nephelometry.

III. Reasoning Out: **(4 x 5 = 20)**

1. Superantigen stimulation can lead to multisystem dysfunction.
2. Capsular sero typing of streptococcus pneumoniae is essential.
3. Haptens are not capable of inducing antibodies.
4. Mueller Hinton agar is used in anti microbial susceptibility test.

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

[MD 1121] NOVEMBER 2021 **Sub. Code: 2014**

(OCTOBER 2021 SESSION)

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Describe the various mechanism of gene transfer among bacteria and its significance. Write a note on genetic engineering in the diagnosis of diseases.
2. Give a detailed account of Antigen Presenting Cells and their role in Immune response.

II. Short notes: **(10 x 5 = 50)**

1. Microbiomes.
2. Tumor antigens.
3. E-Tests.
4. Flow Cytometry.
5. Plasma Sterilization.
6. Iso Antigens.
7. Fluorescent Microscopy.
8. Anaerobic Culture Methods.
9. Transposons.
10. Immuno tolerance.

III. Reasoning Out: **(4 x 5 = 20)**

1. In Brucella agglutination test, several dilutions of the serum are tested in hypertonic saline.
2. ABO Hemolytic diseases can occur even in the first child of O group positive mothers.
3. Oxygen is toxic to anaerobic bacteria.
4. Multiple vaccines like DPT are given simultaneously. What is the mechanism behind it?

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

[MD 0522] **MAY 2022** **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Explain Antigen Presentation. Write in detail about the Histocompatibility Molecule and HLA Antigens. Add a note on HLA Typing.
2. Define mention. Write in detail about the types of Mutation, Detection methods and its Clinical Implications.

II. Short notes: **(10 x 5 = 50)**

1. Hydroclave.
2. Immunological Tolerance.
3. Wiskott Aldrich syndrome
4. MALT.
5. Selective Media.
6. Lymphokine Activated Killer Cells.
7. Ignaz Semmelweis.
8. Signal Tranduction.
9. Anacrobic Culture Methods.
10. Quorum Sensing.

III. Reasoning Out: **(4 x 5 = 20)**

1. Virus infected cells are killed by NK cells.
2. Autoimmune disorders are more prone in Women.
3. Resolution of a microscope depends upon the numerical aperture of its condenser and the objective.
4. C5a is a potent anaphylotoxin.

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

[MD 1022] **OCTOBER 2022** **Sub. Code: 2014**

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Elaborate on the mechanisms of Microbial Pathogenicity.
2. Define and Classify Auto Immune Diseases. Write in detail about the Mechanism of Autoimmunity. Add a note on the laboratory Diagnosis.

II. Short notes: **(10 x 5 = 50)**

1. Heat Shock Proteins.
2. Severe Combined Immunodeficiency disorders.
3. Freeze etching Technique.
4. Premunition.
5. Sterilization by Filtration.
6. Mechanisms of Antimicrobial Resistance.
7. Confocal Microscopy.
8. Basal Media.
9. Cancer Immunotherapy.
10. Automated Culture Techniques.

III. Reasoning Out: **(4 x 5 = 20)**

1. T cell mediated cytotoxicity is a feature of Transplant rejection.
2. Frei test is Type IV hypersensitivity.
3. Killed vaccines require booster doses.
4. Toll like Receptors mediate Cytokine action.

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

[MD 0723] **JULY 2023** **Sub. Code: 2014**

(MAY 2023 EXAM SESSION)

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Classify Antigen Antibody reaction. Write in detail about Precipitation reaction and its clinical application.
2. Classify Sterilization and Disinfection. Write in detail about Autoclave and its application. Add a note on Modern Autoclaves. Give brief account on CSSD.

II. Short notes: **(10 x 5 = 50)**

1. Robert Koch.
2. Theatre sterilization.
3. Fimbriae and its demonstration.
4. Differential Medias.
5. Plasmid.
6. Idiotype and Anti idiotype antibodies.
7. Immunoglobulin A.
8. Compliment pathway.
9. Larger Granular Lymphocytes.
10. Graft versus Host Reaction.

III. Reasoning Out: **(4 x 5 = 20)**

1. Ultrasonic devices are not reliable for regular use in disinfection or sterilization.
2. Blood samples are subjected to bacterial culture only after 1:10 dilution.
3. Pregnancy as an example of Immunological tolerance.
4. Conglutinin causes clumping of cells of particles coated with complement a process known as Conglutination.

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

[MD 1223] DECEMBER 2023 Sub. Code: 2014

(OCTOBER 2023 EXAM SESSION)

M.D. DEGREE EXAMINATION

BRANCH IV – MICROBIOLOGY

PAPER I – GENERAL MICROBIOLOGY AND IMMUNOLOGY

Q.P. Code: 202014

Time: Three Hours **Maximum: 100 Marks**

I. Essay: **(2 x 15 = 30)**

1. Enumerate the important structures of the Bacterial Cell. Describe about the structure and functions of Gram Negative Cell Wall. Discuss its clinical significance.

2. Explain the importance of Acquired Immunity. Discuss the clinical application of Artificial Active Immunity and Artificial Passive Immunity in prevention and treatment of Bacterial infections.

II. Short notes: **(10 x 5 = 50)**

1. Chocolate agar.
2. Robert Koch.
3. Transformation.
4. Phase contrast microscope.
5. Pathogenicity Islands in Bacteria.
6. Role of Macrophages in Immunity.
7. Application of Flowcytometry in Microbiology.
8. Acute Phase Reactants.
9. Type II Hypersensitivity.
10. Uses of monoclonal antibodies.

III. Reasoning Out: **(4 x 5 = 20)**

1. In dark field microscope objects are seen brightly against dark background.
2. Anaerobic bacteria grows in Robertson’s cooked meat medium.
3. IgA antibodies protects against upper respiratory pathogens.
4. Tissue cross matching is not mandatory for corneal transplantation.

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