

[LH 0815]

AUGUST 2015

Sub. Code: 2602

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY**

**FIRST YEAR**

**PAPER II – FUNDAMENTALS OF MEDICAL LABORATORY  
TECHNOLOGY AND MICROBIOLOGY**

*Q.P. Code: 842602*

**Time : Three Hours**

**Maximum : 100 marks**

**Answer ALL questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Types of media.
2. Collection and preservation of biological fluids.
3. Describe in detail morphology, cultural characteristics, and pathogenesis and lab diagnosis of Mycobacteria.

**II. Write notes on:**

**(10 x 5 = 50)**

1. Principle and working mechanism of hot air oven.
2. Batch analyzers.
3. Disposal methods of laboratory substances.
4. Morphology of bacteria.
5. Sterilization methods.
6. Pathogenesis and diseases caused by E.coli.
7. Isolation of viruses.
8. Opportunistic fungal infections.
9. Antiseptics.
10. History of Microbiology.

**III. Short Answers on:**

**(10 x 2 = 20)**

1. Principle of Hot air oven.
2. Methods of blood collection.
3. Define per cent solution.
4. Write any two properties of laboratory substances.
5. Father of Microbiology and his contribution.
6. Differentiate pili and flagella.
7. Any 2 fundamentals of microscopy.
8. Processing of samples. Explain simply with an example.
9. Differentiate bacteria and viruses.
10. Types of mycoses.

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**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Write in detail about the various types of microscopes used in laboratory and its principles and uses.
2. Describe the cultural characters, biochemical reaction, pathogenesis and laboratory diagnosis of vibrio.
3. Define sterilization. Describe in detail about the various sterilization techniques used in laboratory and its principle.

**II. Write Notes on:**

**(10 x 5 = 50)**

1. Collection and preservation of biological fluids.
2. Types of Media used in bacteriology.
3. Test for motility in bacteria.
4. Hypersensitivity.
5. Functions of complement.
6. Tissue culture.
7. Dimorphic fungi.
8. Monoclonal Antibody.
9. Diagnosis of fungal infection.
10. Bacterial growth curve.

**III. Short Answers on:**

**(10 x 2 = 20)**

1. HIV.
2. Name two diseases caused by spirocheate.
3. Name two disinfectant.
4. Antigen.
5. Name the plasmodium species.
6. Centrifuge.
7. Blood agar.
8. Innate immunity.
9. CRP.
10. Gram Positive Cell Wall.

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**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Write about collection, staining and microscopic examination of stool sample.
2. Explain the pathogenesis, epidemiology, laboratory diagnosis and prevention of HIV infection.
3. Write about various sample collection methods and inoculation.

**II. Write Notes on:**

**(10 x 5 = 50)**

1. Factors affecting bacterial growth.
2. Laminar Air Flow.
3. IgA.
4. Principles and uses of auto analyser.
5. Anaerobic Culture Methods.
6. ELISA.
7. Acquired Immunity.
8. Types of flagella.
9. Types of motility.
10. Differentiate disinfectant and sterilization with example.

**III. Short Answers on:**

**(10 x 2 = 20)**

1. Inoculating loop.
2. Gram positive cell wall.
3. Transport media.
4. Any two uses and maintenance of centrifuge.
5. Define pathogenesis.
6. Blood agar.
7. Define vaccine.
8. Flagella.
9. Define pasteurization.
10. Autoclave.

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**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY****FIRST YEAR****PAPER II – FUNDAMENTALS OF MEDICAL LABORATORY  
TECHNOLOGY AND MICROBIOLOGY***Q.P. Code: 842602***Time : Three Hours****Maximum : 100 Marks****Answer ALL questions.****I. Elaborate on:****(3 x 10 = 30)**

1. Write in detail about the types of Analyzers.
2. Write in detail about the types of Sterilization.
3. Describe about the Neisseria gonorrhoea and Neisseria meningitis  
Characteristics, Pathogenesis and Lab Diagnosis.

**II. Write Notes on:****(10 x 5 = 50)**

1. Incubator and Centrifuge.
2. Write about the Code of Conduct of Medical Laboratory Technician.
3. Give description about glassware, its uses, handling and care.
4. Write about the types of immunity.
5. Short notes on Hepatitis Virus.
6. Short notes on Danger signs.
7. Diagnosis of Fungal Infections.
8. Write about different types of antibodies.
9. Write about the different types of Parasites.
10. Short notes on Pox Virus.

**III. Short Answers on:****(10 x 2 = 20)**

1. Write short notes on HIV Virus.
2. Define Phlebotomy.
3. Give any two examples for Germicides.
4. Write about the morphology of Neisseria.
5. Write short notes on Quality Control.
6. What is Monoclonal Antibody?
7. What is Microscope?
8. Write any two uses of Autoclave.
9. Write short notes on Laboratory Report.
10. Write any one Personnel Protective Equipment.

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**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY****FIRST YEAR****PAPER II – FUNDAMENTALS OF MEDICAL LABORATORY  
TECHNOLOGY AND MICROBIOLOGY***Q.P. Code: 842602***Time : Three Hours****Maximum : 100 Marks****Answer ALL questions.****I. Elaborate on:****(3 x 10 = 30)**

1. Write elaborate notes on Cultivation of bacteria.
2. Explain about hypersensitivity reaction.
3. Describe the diagnosis of fungal infection.

**II. Write Notes on:****(10 x 5 = 50)**

1. Short notes on Role and responsibility of lab technician.
2. Write the parts and uses of microscope.
3. Details about Method of sterilization process.
4. Short notes on cestodes and trematodes.
5. Explain Stool examination for parasitic infections.
6. Write notes on Bacterial growth curve.
7. Write notes on Nutritional requirements microorganisms.
8. Types of hepatitis virus.
9. Write short notes on Wet mount KOH technique.
10. Write about Gram staining method.

**III. Short Answers on:****(10 x 2 = 20)**

1. What are antibiotics?
2. Define pure culture.
3. What is germicide?
4. What is cultivation?
5. Define pasteurization.
6. Define Heterotroph.
7. What is Pour plate technique?
8. What is Bactericide?
9. Write the concept of dye and stain.
10. Define Immunity.

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TECHNOLOGY AND MICROBIOLOGY***Q.P. Code: 842602***Time : Three Hours****Maximum : 100 Marks****Answer ALL questions.****I. Elaborate on:****(3 x 10 = 30)**

1. Describe the various methods of sterilizations.
2. Explain about morphological study of bacteria.
3. Explain the morphology, cultural characteristics and diagnosis of staphylococcus.

**II. Write Notes on:****(10 x 5 = 50)**

1. Write notes on spores and its types.
2. Write the parts and uses of microscope.
3. Write about Viruses.
4. Write brief notes on historical aspects of microbiology.
5. Write about the biological properties of bacteria.
6. Explain the structure of bacterial cell wall.
7. Explain about venipuncture.
8. Classification of microorganisms.
9. Write short notes on buffer solution.
10. Write short notes on Flagella and its types.

**III. Short Answers on:****(10 x 2 = 20)**

1. Define Microbiology.
2. Define 'Antiseptics' and name two antiseptics.
3. What is an indicator? Give any two examples.
4. What is pili?
5. What is Sterilization?
6. Define Parasitology.
7. Define Phycology.
8. Define hypersensitivity. Give two examples.
9. Define Pathogen.
10. Write short notes on Anaerobic jar.

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**FIRST YEAR**

**PAPER II – FUNDAMENTALS OF MEDICAL LABORATORY  
TECHNOLOGY AND MICROBIOLOGY**

*Q.P. Code: 842602*

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Write a detailed note on Microscopy. Write the difference between Light and Electron Microscopy.
2. Discuss in detail about the Collection and preservation of biological samples.
3. Write a detailed note on Classification and general principle of Sterilization.

**II. Write Notes on:**

**(10 x 5 = 50)**

1. Acid fast staining.
2. Antibiotic sensitivity testing.
3. Delayed type hypersensitivity.
4. Role of lab technician in the laboratory set up.
5. Mode of Action of Antibiotics.
6. Difference between prokaryote and eukaryote.
7. Growth Curve.
8. Cholera.
9. Structure of Immunoglobulin.
10. Classical pathway.

**III. Short Answers on:**

**(10 x 2 = 20)**

1. Standard Plate Count.
2. Catalase.
3. Coliforms.
4. Tyndallisation.
5. Pasteurisation.
6. Biomedical Waste.
7. Enriched medium.
8. Gonorrhoea.
9. Germ tube test.
10. T-phage.

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**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY**  
**FIRST YEAR**  
**PAPER II – FUNDAMENTALS OF MEDICAL LABORATORY**  
**TECHNOLOGY AND MICROBIOLOGY**

*Q.P. Code: 842602*

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Write a detailed note on Structure, antigenic features and Pathogenicity of Mycobacterium tuberculosis.
2. Discuss in detail about the Structure, antigenic features and Pathogenicity of Staphylococcus.
3. Write a detailed note on antigen antibody reactions.

**II. Write Notes on:**

**(10 x 5 = 50)**

1. Counter Immuno Electrophoresis.
2. Role of lab technician.
3. Enrichment media.
4. Adeno Virus.
5. Gram Staining.
6. Bacteriophage.
7. HBV.
8. Agglutination.
9. ELISA.
10. Centrifuge.

**III. Short Answers on:**

**(10 x 2 = 20)**

1. Resolution.
2. Gram's Staining.
3. Transport media.
4. Hanging drop technique.
5. Anaerobic Jar.
6. CPE.
7. Mycosis.
8. TSI.
9. KOH Staining.
10. Heamagglutination Inhibition.



**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY****FIRST YEAR****PAPER II – FUNDAMENTALS OF MEDICAL LABORATORY  
TECHNOLOGY AND MICROBIOLOGY***Q.P. Code: 842602***Time : Three Hours****Maximum : 100 Marks****Answer ALL questions.****I. Elaborate on:****(3 x 10 = 30)**

1. Write in detail about the various types of hypersensitivity and its characteristics.
2. Describe the life cycle, pathogenesis and laboratory diagnosis of *Plasmodium spp.*
3. Describe in detail about the collection and preservation of biological fluids.

**II. Write Notes on:****(10 x 5 = 50)**

1. Write short notes on quality control in modern laboratories.
2. Write about clinical laboratory records.
3. Write short notes on McIntosh Fildes Jar.
4. Write notes on Handerson-Hasselbach equation.
5. Discuss about resolution and magnification of light and electron microscopy.
6. Write details about Processing of clinical samples for microbiological investigations.
7. Write the characteristics and pathogenesis of *Corynebacterium diphtheria*.
8. Write notes on dengue virus.
9. Write on *Trichinella* infection.
10. Write on Monoclonal antibodies.

**III. Short Answers on:****(10 x 2 = 20)**

1. What is CPE?
2. What is antibiotic sensitivity test?
3. Write on the catalase test.
4. What is a reference value?
5. Name two Non motile Bacilli.
6. How do you prepare normal saline?
7. What is the preservative used to preserve urine?
8. Write about PPE.
9. What is significance of laboratory hygiene?
10. Write on relative centrifugal force.

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

[AHS 0321]

**MARCH 2021**

**Sub. Code: 2602**

**(AUGUST 2020 EXAM SESSION)**

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY**

**FIRST YEAR (Regulation 2014-2015 & 2018-2019)**

**PAPER II – FUNDAMENTALS OF MEDICAL LABORATORY  
TECHNOLOGY AND MICROBIOLOGY**

***Q.P. Code : 842602***

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Write a detailed note on Disinfection.
2. Discuss in detail about the Structure, antigenic features and Pathogenicity of Streptococcus.
3. Write a detailed note on AIDS and the virus associated with it.

**II. Write Notes on:**

**(10 x 5 = 50)**

1. Acid fast staining.
2. Role of lab technician.
3. Immediate hypersensitivity.
4. HBV.
5. Mode of Action of Antibiotics.
6. Difference between prokaryote and eukaryote.
7. Growth Curve.
8. Amoebic dysentery.
9. Structure of Immunoglobulin.
10. Alternate pathway.

**III. Short Answers on:**

**(10 x 2 = 20)**

1. Enteric fever.
2. Oxidase.
3. Dengue.
4. Hanging drop technique.
5. Pasteurisation.
6. Enrichment media.
7. Buffer.
8. Gonorrhoea.
9. Germ tube test.
10. Bacteriophage.

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

[AHS 0122]

**JANUARY 2022**

**Sub. Code: 2602**

**(FEBRUARY 2021 & AUGUST 2021 EXAM SESSION)**

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY  
FIRST YEAR (Regulation 2014-2015 & 2018-2019)  
PAPER II – FUNDAMENTALS OF MEDICAL LABORATORY  
TECHNOLOGY AND MICROBIOLOGY  
*Q.P. Code : 842602***

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Write in detail about the various types of Disinfection and its principles and uses.
2. Describe the cultural characters, biochemical reaction, pathogenesis and laboratory diagnosis of Mycobacterium tuberculosis.
3. Describe in detail about the responsibilities of a technician in the maintenance of auto analysers and other laboratory equipments.

**II. Write Notes on:**

**(10 x 5 = 50)**

1. Write short notes on code of conduct of medical laboratory personnel.
2. Write about Electron Microscopy and its applications.
3. Write short notes on Sampling errors with reference to phlebotomy.
4. Write notes on Henderson-hasselbalch equation.
5. Discuss about Danger signs.
6. Write details about Autoclave.
7. Write the characteristics and pathogenesis of Neisseria gonorrhoea
8. Write notes on Isolation of viruses in laboratory by tissue culture.
9. Write on Candida infection.
10. Write the differences between Nematode, Trematode and Cestode.

**III. Short Answers on:**

**(10 x 2 = 20)**

1. Draw the structure of immunoglobulin.
2. Name two diseases caused by spirochete.
3. Write any two Anticoagulants.
4. What is Complement.
5. What is Oxidase Test?
6. How do you prepare 1M solution?
7. What is Buffer?
8. Write about disposal of carcinogenic chemicals.
9. What is random Access Autoanalyser?
10. Write on functions of Pili.

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

**[AHS 0922]**

**SEPTEMBER 2022**

**Sub. Code: 2602**

**(FEBRUARY 2022 & AUGUST 2022 EXAM SESSIONS)**

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY  
FIRST YEAR (Regulations from 2014-2015 & 2018-2019)  
PAPER II – FUNDAMENTALS OF MEDICAL LABORATORY  
TECHNOLOGY, MICROBIOLOGY  
Q. P. Code: 842602**

**Time: Three hours**

**Maximum : 100 Marks**

**Answer ALL Questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. What is the importance of antibiotic susceptibility testing? Describe in detail about the disc diffusion method.
2. Describe about the pathogenesis and laboratory diagnosis of HIV. Add a note on prevention of transmission of HIV.
3. Enumerate the Intestinal Nematodes. Describe the life cycle and lab diagnosis of Hook Worm.

**II. Write notes on :**

**(10X5=50)**

1. Robertson cooked meat media.
2. Explain stool examination for parasitic infection.
3. Write notes on nutritional requirement of Bacteria.
4. Widal test.
5. Black water fever.
6. Difference between Exotoxin and Endotoxin.
7. Selective media.
8. Explain the modes of transmission of infection.
9. Give the color coding for disposal of biomedical waste in hospital.
10. Classify Streptococci.

**III. Short Answers on :**

**(10 X2 = 20)**

1. Name two fungi causing systemic infections.
2. Blood smear examination for haemoparasites.
3. Pasteurization.
4. Mention the types of Microscopes.
5. Differential stain.
6. Types of disinfectant.
7. Give the uses of Blood Agar.
8. Define Immunity.
9. Types of Hepatitis Virus.
10. Define Pour Culture.

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

[AHS 0423]

APRIL 2023

Sub. Code: 2602

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY  
FIRST YEAR (Regulations 2014-2015 & 2018-2019 onwards)  
PAPER II – FUNDAMENTALS OF MEDICAL LABORATORY  
TECHNOLOGY, MICROBIOLOGY  
Q. P. Code: 842602**

**Time: Three hours**

**Maximum : 100 Marks**

**Answer ALL Questions**

**I. Elaborate on:** **(3 x 10 = 30)**

1. Classify the various types of Media and its importance. Briefly write about the preparation of Blood Agar.
2. Describe in detail Morphology, cultural characteristics and pathogenesis and lab diagnosis of Mycobacteria.
3. Write the various species of Malarial Parasites and explain the life cycle, pathogenesis and laboratory diagnosis of Plasmodium vivax.

**II. Write notes on:** **(10 X 5 = 50)**

1. Difference between Disinfectant and Disinfection.
2. Biological indicator of Hot Air Oven and Autoclave.
3. Coagulase Test.
4. Antiseptics.
5. KOCH Postulates.
6. Light Microscopy.
7. Describe the types of Flagella with diagram.
8. Opportunistic fungal infection.
9. General characteristics of Virus.
10. What are the tests for Motility of Bacteria?

**III. Short Answers on:** **(10 X 2 = 20)**

1. Venipuncture.
2. Biosafety.
3. Write any two Anticoagulants and its uses.
4. Preparation of Cleaning solutions.
5. Gram stain.
6. Anaerobic Jar.
7. Name three Pigment Producing Organisms.
8. Transport Media.
9. Mycosis.
10. KOH staining.

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