

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
SECOND YEAR**

**PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY AND
HISTOPATHOLOGY**

Q.P. Code: 842611

Time: Three Hours

Maximum : 100 Marks

Answer All questions

I. Elaborate on:

(3 x 10 = 30)

1. Describe in detail about Thyroid Function Tests.
2. Write in detail about various steps involved in Tissue Processing.
3. Write in detail about physical properties and chemical estimation of urine.

II. Write notes on:

(10 x 5 = 50)

1. Electrophoresis.
2. Flame photometer.
3. De proteinisation of blood.
4. Electrolytes.
5. GTT.
6. Coombs test.
7. Semen Analysis.
8. PAP Stain.
9. Reticulocyte Count.
10. Transfusion Reactions.

III. Short answers on:

(10 x 2 = 20)

1. Name Liver Enzymes.
2. Define PH.
3. Heparin.
4. BEERS Law.
5. Types of Centrifuge.
6. Differences between Serum and Plasma.
7. Name the Malarial Parasites.
8. Morphology and Life span of RBC.
9. Normal value in blood smear Differential Count of:
a) Neutrophils b) Lymphocytes.
10. Write about WBC Pipette.

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Q.P. Code: 842611

Time: Three Hours

Maximum : 100 Marks

Answer All questions

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

1. Describe in detail about Glucose Tolerance Tests and write the normal values of Fasting Blood Sugar, Post prandial Blood Sugar and HbA1C.
2. Classify Anticoagulants. Write in detail about various Anticoagulants used in hematological investigations.
3. Discuss in detail about different types of blood groups, methods of detection of blood groups and sera preparation.

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

1. Tests to assess bile salts and bile pigments.
2. Define balance, write different Types of balances and preparation of balance for use.
3. PH Meter.
4. Chromatography.
5. ELISA.
6. Write the principle and procedure for ESR estimation.
7. Mounting of specimens.
8. RBC Indices.
9. Bone marrow smear and recognition of normal marrow cells.
10. CSF Cell count.

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

1. Indications for LFT.
2. Incineration.
3. Principle of Colorimeter.
4. Normal range of (a) Blood Urea. (b) Serum Creatinine.
5. Principle of estimation of Cholesterol.
6. Composition of Leishman stain.
7. Absolute Eosinophil count.
8. Concentration method of Ova and Cyst in stool.
9. Use of L-mould in histopathology.
10. Uses of Xylene and Alcohol in tissue processing.

DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY**SECOND YEAR****PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY AND HISTOPATHOLOGY***Q.P. Code: 842611***Time: Three Hours****Maximum : 100 Marks****Answer All questions****I. Elaborate on:****(3 x 10 = 30)**

1. Describe in detail about Liver Function Tests.
2. Write in detail about blood sample collection, preservation of sample and preparation of peripheral smear.
3. Write about the investigations of anemia. Describe in detail about Sahli's hemoglobin estimation.

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

1. 24 Hours urine collection.
2. Cleaning of glass wares.
3. Estimation of Blood Sugar.
4. Types of Balances.
5. Estimation of Amylase.
6. Hemoparasites.
7. Formaldehyde fixative.
8. Honing and Stropping.
9. Histokinette.
10. Urine Protein Estimation.

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

1. Hay's test.
2. Centrifuge.
3. Name two Anticoagulants.
4. Buffer.
5. Preparation of Mayer's egg albumin.
6. Ketone bodies.
7. Normal value of
 - a) Bleeding time
 - b) Clotting time
8. Tissue Embedding.
9. RBC Pipette.
10. Morphology of Eosinophil.

DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
SECOND YEAR
PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY AND
HISTOPATHOLOGY

Q.P. Code: 842611

Time: Three Hours

Maximum : 100 Marks

Answer All questions

I. Elaborate on:

(3 x 10 = 30)

1. Write detail notes on inborn errors in metabolism.
2. Discuss about automated tissue processing technique.
3. Write in detail about Liver function tests.

II. Write notes on:

(10 x 5 = 50)

1. Write the process of Blood coagulation.
2. Write notes on enzyme markers.
3. Write the principle and applications of affinity chromatography.
4. Write notes on muscle biopsy technique.
5. Write about lesch-nyhan syndrome.
6. Short notes on Diabetes mellitus.
7. Write the parts and functions of microtome.
8. How would you prepare a urine specimen for microscopic examination?
9. Define Hormone and its classification.
10. Write short notes on physical and microscopically examination of semen.

III. Short answers on:

(10 x 2 = 20)

1. Define Enzyme.
2. Define Photometry.
3. What is metabolic alkalosis?
4. Short notes on kwashiorkor.
5. Define pathology.
6. Define pH.
7. Write about Lambert's and Beer's Law.
8. Define Anemia.
9. What is Fatty Liver?
10. What is the Normal Range of AST and APT?

DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
SECOND YEAR
PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY AND
HISTOPATHOLOGY

Q.P. Code: 842611

Time: Three Hours

Maximum : 100 Marks

Answer All questions

I. Elaborate on:

(3 x 10 = 30)

1. Elaborate on physical and chemical examination of urine.
2. Discuss about tissue processing technique.
3. Elaborates on collection and examination of cerebrospinal fluid.

II. Write notes on:

(10 x 5 = 50)

1. Define fixative and types of fixatives.
2. Write short notes on enzymes and its clinical applications.
3. Write about Mechanism of drug resistance.
4. Write notes on muscle biopsy technique.
5. Write about human karyotypic analysis.
6. Explain about Diabetes mellitus and its types.
7. Write about the gastric function test.
8. Explain about decalcification?
9. Write about multiple drug resistance.
10. Write about fine needle aspiration.

III. Short answers on:

(10 x 2 = 20)

1. What is the normal range of blood sugar level?
2. What is embedding?
3. What is spermatozoa?
4. What is meant by artifacts?
5. Define exfoliative cytology.
6. What are ketone bodies?
7. What is autopsy?
8. What is cryostat and its uses?
9. What is biosafety?
10. What are the serum proteins?

DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
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PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY AND
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Q.P. Code: 842611

Time: Three Hours

Maximum : 100 Marks

Answer All questions

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

1. Write a detailed note on morphological and etiological classification of Anemia and add a note on Hemolytic Anemia.
2. Discuss in detail about the Storage of blood and its components.
3. Write a detailed note on Urine Analysis.

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

1. Preparation of blood smear.
2. Hemolytic Disease of Newborn.
3. PAGE (Polyacrylamide Gel Electrophoresis).
4. Glycogen Storage diseases.
5. Mode of Action of Antibiotics.
6. Anticoagulants.
7. Hematocrit.
8. Fixatives.
9. Hematuria.
10. Coomb's Test.

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

1. Liver Function tests.
2. Creatinine kinase.
3. Luminous Flux.
4. Normal range of (i) Blood Sugar (ii) Blood urea.
5. ESR.
6. Absolute Eosinophil Count.
7. L-mould.
8. Use of Xylene in tissue processing.
9. GTT.
10. Principle in the estimation of cholesterol.

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
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PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY AND
HISTOPATHOLOGY**

Q.P. Code: 842611

Time: Three Hours

Maximum : 100 Marks

Answer All questions

I. Elaborate on:

(3 x 10 = 30)

1. Write a detailed note on liver function tests and the enzyme markers involved in LFT.
2. Discuss in detail about the metabolic disorders of carbohydrates.
3. Write a detailed note on Mechanism of antibiotic resistance and add a note on multiple drug resistance.

II. Write notes on:

(10 x 5 = 50)

1. FNAC.
2. Preparation of Mounting medium.
3. Tests for Protein in urine.
4. Microscopic examination of Stool.
5. Mode of Action of Antibiotics.
6. Estimation of Serum HDL Cholesterol.
7. Preparation of fluids for cytological examination.
8. Principle and uses of PAS Staining.
9. Hematuria.
10. Casts in Urine.

III. Short answers on:

(10 x 2 = 20)

1. Total Lymphocyte Count (TLC).
2. Aphthous Stomatitis (AST).
3. Beer's law.
4. Normal range of (i) Blood Sugar (ii) Blood urea
5. Nieman Pick disease.
6. Care of microtome knives.
7. Cryostat.
8. Use of Xylene in tissue processing.
9. Heller's test.
10. Bromocresol blue method.

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
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**PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY AND
HISTOPATHOLOGY**

Q.P. Code: 842611

Time: Three Hours

Maximum : 100 Marks

Answer All questions

I. Elaborate on:

(3 x 10 = 30)

1. Write a detailed note on chromatography and the types and principle involved of chromatography.
2. Discuss in detail about the metabolic disorders of carbohydrates.
3. Write a detailed note on chemical and microscopic examination of urine.

II. Write notes on:

(10 x 5 = 50)

1. GTT.
2. Preservatives used in urine sample.
3. H and E staining.
4. Microscopic examination of stool.
5. Blood smear and its importance.
6. Estimation of serum HDL cholesterol.
7. PAGE (Polyacrylamide Gel Electrophoresis).
8. PTAM.
9. Hematuria.
10. Preparation of mounting medium.

III. Short answers on:

(10 x 2 = 20)

1. PAGE.
2. Beta lactam antibiotics.
3. Beer's law.
4. Name the four electrolytes tested in blood.
5. Clinical application of alkaline phosphatase and creatinine kinase.
6. Hematocrit.
7. Cryostat.
8. Use of Xylene in tissue processing,
9. Lesch Nyhan syndrome.
10. Deficiency of glucose 6 phosphate dehydrogenase.

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

[LR 1220]

**DECEMBER 2020
(AUGUST 2020 EXAM SESSION)**

Sub. Code: 2611

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
SECOND YEAR – (Regulation from 2014 -2015 & 2018-2019)
PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY & HISTOPATHOLOGY
Q.P. Code: 842611**

Time: Three Hours

Maximum : 100 Marks

Answer All Questions

I. Elaborate on:

(3 x 10 = 30)

1. Describe in detail about Liver Function Tests.
2. Classify Anticoagulants. Write in detail about various Anticoagulants used in hematological investigations with its advantage and disadvantage.
3. Elaborates on collection and examination of cerebrospinal fluid.

II. Write notes on:

(10 x 5 = 50)

1. Leishman stain preparation and its procedure for staining. Mention its advantage and disadvantage.
2. EDTA.
3. Write about techniques in Frozen section and its uses.
4. Parasites in stool.
5. Write in detail about the artifacts in cutting and Methods to rectify it.
6. Sickle test.
7. CSF Analysis.
8. Perl Stain.
9. Reticulocyte Count.
10. Transfusion Reactions.

III. Short answers on:

(10 x 2 = 20)

1. Name Romanowsky stains used in Hematology.
2. Name two anticoagulant used in blood bank for storage of blood component.
3. knife sharpening techniques used in histopathology.
4. BEERS Law.
5. Tissue embedding media.
6. Differences between Serum and Plasma.
7. Name causes for eosinophilia
8. Morphology and Life span of Neutrophil.
9. Name four Preservatives for Urine sample.
10. Write about RBC Pipette.

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

[AHS 0122]

JANUARY 2022

Sub. Code: 2611

(FEBRUARY 2021 & AUGUST 2021 EXAM SESSION)

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
SECOND YEAR – (Regulation from 2014 -2015 & 2018-2019)
PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY &
HISTOPATHOLOGY**

Q.P. Code: 842611

Time: Three hours

Answer ALL Questions

Maximum: 100 Marks

I. Elaborate on:

(3 x 10 = 30)

1. Describe in detail about Glucose Tolerance Tests and write the normal values of Fasting Blood Sugar, Post prandial Blood Sugar and HbA1C.
2. Discuss in detail about the Storage of blood and its components.
3. Write in detail about various steps involved in Tissue Processing.

II. Write notes on:

(10 x 5 = 50)

1. Buffy coat preparation.
2. Write in detail about segregation of Bio medical waste.
3. Write in detail about Equipment used in histopathology and its Uses and maintenance.
4. Chromatography.
5. Write about Principle of ELISA and its indication.
6. Write the principle and procedure for PCV.
7. Mounting fluid used in specimen mounting with its composition and its Uses.
8. Write in detail about Crystals in Urine.
9. Staining of Bone marrow smear and recognition of Normal marrow cells.
10. Write about Bombay Blood group and methods to deduct it.

III. Short answers on:

(10 x 2 = 20)

1. Name four causes of Lymphocytosis.
2. What is Bleeding time and mentions its Normal range.
3. Principle of Colorimeter.
4. Incineration.
5. Principle of estimation of Cholesterol.
6. Name methods used for Blood collection.
7. Absolute Eosinophil count.
8. Normal range of (a) Sodium. (b) Potassium.
9. Name two screening test for Blood Transfusion.
10. Ideal Peripheral Smear.

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

[AHS 0922]

SEPTEMBER 2022

Sub. Code: 2611

(FEBRUARY 2022 & AUGUST 2022 EXAM SESSIONS)

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
SECOND YEAR (Regulations from 2014-2015 & 2018-2019)
PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY AND
HISTOPATHOLOGY
*Q. P. Code: 842611***

Time: Three hours

Maximum : 100 Marks

Answer ALL Questions

I. Elaborate on:

(3 x 10 = 30)

1. Discuss about automated tissue processing technique.
2. Write in detail about thyroid function tests.
3. Write a detailed note on mechanism of antibiotic resistance and add a note on multiple drug resistance.

II. Write notes on:

(10 x 5 = 50)

1. Muscle biopsy technique.
2. Beer's Law and Lambert's Law.
3. Liver Function Tests.
4. Investigations for Diabetes Mellitus.
5. Mounting of specimens.
6. Biomedical waste management.
7. Parts and functions of microtome.
8. Microscopic examination of stool.
9. 24 Hour Urine collection with Urinary Preservatives.
10. Process of Blood coagulation.

III. Short answers on:

(10 x 2 = 20)

1. Applications of enzymes.
2. Principle and uses of PAS staining.
3. Incineration.
4. Glucose and total proteins level in CSF.
5. Total leucocyte count.
6. Test for Myocardial Infarction.
7. Mention the tests to detect bile salts and bile pigments.
8. Microalbuminuria.
9. Leishman stain.
10. Causes for eosinophilia.

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

[AHS 0423]

APRIL 2023

Sub. Code: 2611

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
SECOND YEAR (Regulations 2014-2015 & 2018-2019 onwards)
PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY AND
HISTOPATHOLOGY**

Q. P. Code: 842611

Time: Three hours

Maximum : 100 Marks

Answer ALL Questions

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

1. Write in detail about Thyroid Function Tests.
2. Discuss in detail the Physical and Chemical Examination of Urine.
3. Write about specimen collection, fixation methods and staining procedures in Fine Needle Aspiration Cytology.

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

1. Specimen Collection-Blood.
2. Freezing Microtome-Fixation and uses.
3. Principle and parts of Colorimeter.
4. Centrifuge.
5. RBC indices.
6. Serum electrolytes.
7. Biochemical tests for Jaundice.
8. Honing and Stropping.
9. Semen analysis.
10. Pancreatic Function Test.

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

1. Tissue embedding.
2. Creatinine clearance.
3. Normal range of fasting and postprandial plasma glucose.
4. Name four Urine preservatives.
5. Crystals in Urine.
6. Name the Ketone bodies.
7. Heparin.
8. What is Hematuria? Any two conditions causing Hematuria.
9. Pap stain.
10. Test for Myocardial Infarction.

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

[AHS 1123]

NOVEMBER 2023

Sub. Code: 2611

**DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY
SECOND YEAR (Regulations 2014-2015 & 2018-2019 onwards)
PAPER I – CLINICAL BIOCHEMISTRY, PATHOLOGY AND
HISTOPATHOLOGY
Q. P. Code: 842611**

Time: Three hours

Maximum : 100 Marks

Answer ALL Questions

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

1. Describe in detail about Glucose Tolerance Test and write the normal values of Fasting Blood Sugar, Post Prandial Blood Sugar and HbA1C.
2. Explain in detail about Urine Analysis.
3. Write in detail about various steps involved in Tissue Processing.

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

1. Tests for Myocardial Infarction.
2. Role of Fine Needle Aspiration Cytology.
3. Equipments used in Histopathology, its uses and maintenances.
4. Chromatography.
5. Decalcification.
6. Liver Function Test.
7. Mounting fluid used in specimen mounting with its composition and its uses.
8. Crystals in Urine.
9. H and E staining.
10. Sputum examination.

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

1. PAS stain.
2. Gout.
3. Alkaptonuria.
4. Microtome.
5. Principle of Estimation of Cholesterol.
6. Role of Frozen section.
7. DPX.
8. Normal range of (a) Sodium (b) Potassium.
9. Causes of Polyuria.
10. Tay-Sachs disease.
