

Syllabus and Curriculum
of
Diploma in Lab Technician course

(To be implemented From 2016 - 17 session)

Uttar Pradesh State Medical Faculty, Lucknow.

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OBJECTIVES OF THE COURSE

To prepare a **Lab technician** who –

- Can perform all types of pathological tests.
- Can perform all types of Biochemistry tests.
- Can perform all types of Microbiology tests.
- Can help in processing of Histo-cytopathology.
- Can perform blood bank techniques.

Outline of Curriculum of Diploma in Lab Technician course

FIRST YEAR

THEORY (Classes: 9 AM to 12 Noon)

First paper : Syllabus covers -

1. General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of all organ systems of body).
2. Only basics of relevant Pathology, Pharmacology & Microbiology.

Second paper : Syllabus covers -

1. Clinical Hamatology & Clinical Microbiology-I.
2. Clinical Biochemistry-I.
3. Hand hygiene & prevention of cross infection.
4. Basics life support (BLS) & Cardio-pulmonary resuscitation (CPR).

FIRST YEAR

PRACTICAL (Classes: 1 PM to 4 PM)

Practical classes will be after lunch; from 1 PM to 4 PM.

Students must present in the hospital/ Lab for practicals.

(for curriculum, please see p.no.-21 to 23)

Following subjects must be taught; though there will not be any exam from these-

1. Basic Computer skills.
2. Basic English.
2. **Soft skills like** - Interpersonal relationship skills & moral education.

Outline of Curriculum
of
Diploma in Lab Technician course

SECOND YEAR

THEORY (classes:9 AM to 12 Noon)

First paper : Syllabus covers -

1. Only relevant surgical & medical conditions (relevant to Lab technician).
2. Clinical Microbiology-II & Biochemistry-II.

Second paper : Syllabus covers -

1. Histopathology & Cytopathology.
2. Blood banking & Biomedical waste management.

SECOND YEAR

PRACTICAL (classes:9 AM to 12 Noon)

Practical exams syllabus should cover-

(for details , please see p.no.- 30 to 32)

ELIGIBILITY CRITERIA FOR ADMISSION & DURATION OF THE COURSE

COURSE DURATION:-

- It is 2 years, **full time** Diploma Course.

ELIGIBILITY:-

- Candidate must have passed 12th with
Physics, Chemistry, Biology
Or
Physics, Chemistry, Maths
with 35% marks in Intermediate exams.

(From UP board or any other recognised board).
- Candidate must have completed age of 17 years of age as on 31st December of admission year. There is no maximum age limit for the admission.

SCHEDULE OF EXAMINATION

FIRST YEAR

| <u>Paper</u> | <u>Subjects</u> | <u>Mark</u> | <u>Internal Assessment Marks</u> | <u>Total Marks</u> | <u>Pass Marks</u> | <u>Duration of Exam.</u> |
|-----------------------------------|--|-------------|----------------------------------|--------------------|-------------------|--------------------------|
| <u>First Paper Theory</u> | 1. General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of all organ systems of body). 2. Only basics of relevant Pathology, Pharmacology & Microbiology. | 75 | 25 | 100 | 50 | 3 Hours |
| <u>Second Paper Theory</u> | 1. Clinical Hamatology & Clinical Microbiology-I. 2. Clinical Biochemistry-I. 3. Hand hygiene & prevention of cross infection. 4. Basics life support (BLS) & Cardio-pulmonary resuscitation (CPR). | 75 | 25 | 100 | 50 | 3 Hours |
| <u>Practical</u> | Oral & Practical | 75 | 25 | 100 | 50 | 3 Hours |

SCHEDULE OF EXAMINATION

SECOND YEAR

| <u>Paper</u> | <u>Subjects</u> | <u>Mark</u> | <u>Internal Assessment Marks</u> | <u>Total Marks</u> | <u>Pass Marks</u> | <u>Duration of Exam.</u> |
|-----------------------------------|--|-------------|----------------------------------|--------------------|-------------------|--------------------------|
| <u>First Paper Theory</u> | 1. Only relevant surgical & medical conditions (relevant to Lab technician). 2. Clinical Microbiology-II & Biochemistry-II. | 75 | 25 | 100 | 50 | 3 Hours |
| <u>Second Paper Theory</u> | 1. Histopathology & Cytopathology. 2. Blood banking & Biomedical waste management. | 75 | 25 | 100 | 50 | 3 Hours |
| <u>Practical</u> | Oral & Practical | 75 | 25 | 100 | 50 | 3 Hours |

SCHEDULE OF COURSE

(List of holidays, Total hours, Subject wise allotment of hours)

- **List of Holidays:-**

| | |
|----------------------|------------|
| Sundays | - 52 days |
| Summer vacation | - 10 days |
| Winter vacation | - 10 days |
| Gazetted holidays | - 23 days |
| Preparatory holidays | - 10 days |
| <hr/> | |
| Total Holidays | - 105 days |
| <hr/> | |

- **Total Hours :-**

| | |
|---|----------------------------------|
| Theory classes per day | - 3 Hours |
| Practical classes per day | - 3 Hours |
| Total hours per day | - 6 Hours |
| Total days & hours in One year (after deduction of holidays) | - 260 days or - 1560 Hours |

SCHEDULE OF COURSE

Subject wise allotment of hours

FIRST YEAR

Theory (780 Hours) Practical (780 Hours)

| | | |
|---|---|---------|
| <u>First Paper Theory</u> | 1.General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of all organ systems of body). | 180 Hrs |
| | 2.Only basics of relevant Pathology, Pharmacology & Microbiology. | 80 Hrs |
| <u>Second Paper Theory</u> | 1.Clinical Haematology & Clinical Microbiology-I. | 280 Hrs |
| | 2. Clinical Biochemistry-I. | 100 Hrs |
| | 3.Hand hygiene & prevention of cross infection. | 30 Hrs |
| | 4.Basics life support (BLS) & Cardio-pulmonary resuscitation (CPR). | 40 Hrs |
| <u>Third Paper Practical</u> | As described in curriculum | 780 Hrs |
| <u>Theory: Other Subjects</u> (These subjects must be taught, though there will not be any exam from these) | 1.Basic Computer skills. | 30 Hrs |
| | 2.Basic English. | 30 Hrs |
| | 3.Soft skills like - Interpersonal relationship skills & moral education | 10 Hrs |

SCHEDULE OF COURSE

Subject wise allotment of hours

SECOND YEAR

Theory (780 Hours) Practical (780 Hours)

| | | |
|---|--|---------|
| <u>First Paper Theory</u> | 1. Only relevant surgical & medical conditions (relevant to Lab technician). | 180 Hrs |
| | 2. Clinical Microbiology-II & Biochemistry-II. | 225 Hrs |
| <u>Second Paper Theory</u> | 1. Histopathology & Cytopathology. | 250 Hrs |
| | 2. Blood banking & Biomedical waste management. | 125 Hrs |
| <u>Third Paper Practical</u> | As described in curriculum | 780 Hrs |

Details of Curriculum for First Year
Diploma in Lab Technician

| PAPER 1st Theory | Topics | Hours. |
|--|--|--------|
| 1.General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of all organ systems of body). | 1. General Orientation about parts of human body. Various terms used in Anatomy. Total numbers of bones, their names & location. Basic idea about organization of body ,from cell to organ systems. | 06 Hrs |
| | 2. Structure of Animal cell, Cell organelles & their functions | 06 Hrs |
| | 3. Human tissue, types, structure & functions. | 10 Hrs |
| | 4. Osteology: Names, location, identification and basic details of all bones. (Details of skull bones is not required). | 20 Hrs |
| | 5. Joints: types, basic structure & examples. | 06 Hrs |
| | 6. Skin & appendages. | 02 Hrs |
| | 7. GIT: : Location, Gross structure, various parts & their functions. Details of process of food ingestion, digestion, absorption & defaecation. (Microscopic structure is not required.) | 15 Hrs |
| | 8. Respiratory tract: Location, Gross structure, various parts & their functions. Details of breathing mechanism, different respiratory volumes. (Microscopic structure is not required.) | 15 Hrs |
| | 9. Urinary tract: Gross structure, various parts & their functions. (Microscopic structure is not required.) Process of urine formation & voiding. | 10 Hrs |
| | 10. Male reproductive system: Only gross structure & functions of different parts. (Microscopic structure is not required.) | 05 Hrs |
| | 11. Female reproductive system: Only gross structure & functions of different parts. (Microscopic structure is not required.) Menstrual cycl | 05 Hrs |

**Details of Curriculum for First Year
Diploma in Lab Technician**

| PAPER 1st Theory | Topics | Hours. |
|--|--|---------------|
| 1.General Anatomy & Physiology (Cytology, Histology, Osteology and only basics of all organ systems of body). | 12. Endocrine system: Hormones secreted by Pituitary, Thyroid, Parathyroid, Pancreas, Adrenal cortex, Adrenal medulla, Gonads & functions of different hormones. (Details of structure of these glands not required). | 10 Hrs |
| | 13. Gross structure of brain & spinal cord. Functions of different parts of brain & spinal cord.(Details not required.) | 20 Hrs |
| | 14. Blood: Composition & Functions. Details about Plasma, RBCs, WBCs, Platelets, Clotting system. | 20 Hrs |
| | 15. Gross structure & functions of sensory Organs - Eye, Ear, Nose, Tongue.(Details not required). | 10 Hrs |
| | 16. Basic gross structure of heart, vessels opening into heart & Leaving the heart. Arterial & Venous tree of body. | 10 Hrs |
| | 17. Lymphatic system: Structure & Functions. | 10 Hrs |
| | 18. Inumune system: Components & various mechanisms of defense. | 10 Hrs |

Details of Curriculum for First Year Diploma in Lab Technician

| PAPER 1st Theory | Topics | Hours. |
|--|--|--------|
| 2.Only basics of relevant Pathology, Pharmacology & Microbiology. | 1. Basic steps of Acute & chronic inflammation and Healing of wound. | 05 Hrs |
| | 2. Basics of Necrosis & apoptosis. | 02 Hrs |
| | 3. Basics of Shock. | 02 Hrs |
| | 4. Basics of Disorders of blood coagulation system. | 08 Hrs |
| | 5. Basics of Disorders of Immune system of body. | 05 Hrs |
| | 6. Modes of disease transmission & prevention of infection. | 05 Hrs |
| | 7. Sterilization & methods of sterilization used in hospitals. | 10 Hrs |
| | 8. Basic idea about types of Bacteria, Virus, Fungi. | 20 Hrs |
| | 9. Routes of drug administration. | 02 Hrs |
| | 10. Adverse effects & side effects of drugs. | 02 Hrs |
| | 11. Basic idea of Analgesics : Opioid & NSAIDs. | 02 Hrs |
| | 12. Basic idea of Drugs use in Cough & expectoration. | 01 Hrs |
| | 13. Basic idea of Drugs used in B. asthma & COPD. | 02 Hrs |
| | 14. Basic idea of Drugs used in GIT. | 03 Hrs |
| | 15. Basic idea of Anti Microbials. | 15 Hrs |
| | 16. Basic idea of Anti H-1 Histaminics & Corticosteroids. | 01 Hrs |
| | 17. Drugs used in anaemia. | 02 Hrs |

Details of Curriculum for First Year Diploma in Lab Technician

| PAPER 2nd Theory | Topics | Hours. | |
|--|--------|---|--------|
| 1.Clinical Hematology & Clinical Microbiology- I. | 1 | Introduction to pathology. | 03 Hrs |
| | 2 | Composition of blood -1.(RBC,WBC,Platelet) | 05 Hrs |
| | 3 | Composition of blood -2. (Plasma & Plasma Protein) | 04 Hrs |
| | 4 | Routine Instruments in haematology | 20 Hrs |
| | 5 | Collection and Preservation of Blood. | 05 Hrs |
| | 6 | Use of autoanalyser in haematology. | 05 Hrs |
| | 7 | Making of stains in haematology. | 03 Hrs |
| | 8 | Preparation of thick & thin smears. | 03 Hrs |
| | 9 | Leishman stain (PPreparation & method of staining) | 03 Hrs |
| | 10 | Other stains in haematology (Preparation & Method of staining). | 03 Hrs |
| | 11 | Anti coagulant vials-their preparation and use. | 03 Hrs |
| | 12 | Erythrocytes & abnormal erythrocytes | 03 Hrs |
| | 13 | Reticulocyte count. | 03 Hrs |
| | 14 | Platelet count. | 03 Hrs |
| | 15 | Absolute Values. | 02 Hrs |
| | 16 | Hemoparasites | 02 Hrs |
| | 17 | ESR,PCV | 05 Hrs |
| | 18 | Osmotic fragility Test. | 05 Hrs |
| | 19 | LE Cell 1 | 03 Hrs |
| | 20 | Coagulation Disorders. | 07 Hrs |
| | 21 | Lab Diagnosis of Bleeding Disorders. | 05 Hrs |
| | 22 | Formation & Composition of Urine | 05 Hrs |
| | 23 | Collection & Preservation of Urine. | 02 Hrs |
| | 24 | Abnormal constituents of urine. | 03 Hrs |
| | 25 | Urinometer & Esbach's Albuminometer | 05 Hrs |
| | 26 | Physical & Chemical examination of urine. | 10 Hrs |
| | 27 | Microscopic examination of urine. | 10 Hrs |
| | 28 | Liver function test. | 05 Hrs |
| | 29 | Renal Function Test. | 05 Hrs |
| | 30 | Examination of body fluids -1. (Pleural,Peritoneal & Synovial.) | 05 Hrs |
| | 31 | Examination of body fluids -2.CSF | 05 Hrs |
| | 32 | Semen Examination. | 05 Hrs |
| | 33 | Investigations for Aneamia. | 10 Hrs |
| | 34 | Hemolytic Aneamia, Foetal Hb. | 05 Hrs |
| | 35 | Bone Marrow indications,contra indications & aspiration. | 15 Hrs |
| | 36 | Introduction to leukemia | 05 Hrs |
| | 37 | Chronic leukemia & acute leukemia. | 05 Hrs |
| | 38 | Use of auto analyser in Haematology | 10 Hrs |

Details of Curriculum for First Year Diploma in Lab Technician

| PAPER 2nd Theory | Topics | | Hours. |
|--|--|--|--------|
| 1.Clinical Hematology & Clinical Microbiology- I. | 39 | General introduction & terms used in Microbiology | 03 Hrs |
| | 40 | Safety measures in Microbiology | 03 Hrs |
| | 41 | Universal precautions | 03 Hrs |
| | 42 | Bio-Waste Disposal | 03 Hrs |
| | 43 | Growth & nutrition of Bacteria | 03 Hrs |
| | 44 | Care and Handling of Microscopes | 03 Hrs |
| | 45 | Use, Care and maintenance of common Lab equipments like centrifuges-I | 12 Hrs |
| | 46 | Use, Care and maintenance of common Lab equipments like centrifuges-II | 10 Hrs |
| | 47 | Principles & methods of sterilization | 05 Hrs |
| | 48 | Antiseptics and disinfectants | 02 Hrs |
| | 49 | PH, Buffer & reagents-I | 01 Hr |
| | 50 | PH, Buffer & reagents-II | 01 Hr |
| | 51 | Routine bacteria Culture media-I | 02 Hrs |
| | 52 | Routine bacteria Culture media-II | 02 Hrs |
| | 53 | Media for bacterial identification-I | 02 Hrs |
| | 54 | Media for bacterial identification-II | 02 Hrs |
| | 55 | Media for Drug Sensitivity Testing | 02 Hrs |
| | 57 | Classification of staining methods smear preparation | 02 Hrs |
| | 58 | Gram stains and other routine stains in Microbiology | 02 Hrs |
| | 59 | Z.N. Stains and other stains for Mycobacterium | 02 Hrs |
| | 60 | Leishman staining | 01 Hr |
| 65 | Mechanism of drug resistance in bacteria . | 02 Hrs | |
| 66 | Anti bacterial sensitivity testing-I | 02 Hrs | |
| 67 | Anti bacterial sensitivity testing-II | 02 Hrs | |

Details of Curriculum for First Year
Diploma in Lab Technician

| PAPER 2nd Theory | Topics | | Hours. |
|--|--------|--|--------|
| 2.Clinical Biochemistry- I. | 1 | Introduction of Biochemistry | 05 Hrs |
| | 2 | Biochemistry Use in Medicine | 05 Hrs |
| | 3 | Units of Measurement | 05 Hrs |
| | 4 | Measurement of Volumetric Apparatus (Pipettes, Flasks & Cylinders) | 05 Hrs |
| | 5 | Laboratory Hazards | 05 Hrs |
| | 6 | Laboratory Safety | 05 Hrs |
| | 7 | Laboratory Design & Administration | 10 Hrs |
| | 8 | Sample Collection | 10 Hrs |
| | 9 | Universal Precautions | 05 Hrs |
| | 11 | Concept and Calculations Molecular Weight | 03 Hrs |
| | 12 | Concept and Calculations Equivalent Weight | 03 Hrs |
| | 13 | Basic Principles of Centrifugation | 03 Hrs |
| | 14 | Mole, Molar, Buffer & Normal Solution | 03 Hrs |
| | 15 | Definitions of Acid Base | 03 Hrs |
| | 16 | Calorimeter | 10 Hrs |
| | 17 | Preparation of Anticoagulants | 05 Hrs |
| | 18 | Preservation of Anticoagulants | 05 Hrs |
| | 19 | PH & Buffer | 05 Hrs |
| | 20 | Water Purification | 05 Hrs |
| | 21 | Sterilization | 05 Hrs |

Details of Curriculum for First Year Diploma in Lab Technician

| PAPER 2nd Theory | Topics | Hours. |
|--|---|--------|
| 3.Hand hygiene & prevention of cross infection. | 1. Hand hygiene & method of Hand washing. | 15 Hrs |
| | 2. Prevention of cross infection. | 15 Hrs |

| PAPER 2nd Theory | Topics | Hours. |
|--|--|--------|
| 4.Basic life support (BLS) & Cardio- pulmonary resuscitation (CPR). | 1. Code blue. | 05 Hrs |
| | 2. Details of basic life support (BLS) & Cardio-pulmonary resuscitation (CPR). | 35 Hrs |

Curriculum
for
Practical :- First Year
Diploma in Lab Technician

| | Topics | |
|----|------------------|--|
| | Practical | 1 |
| 2 | | Assessing hemoglobin with different methods. |
| 3 | | Loading of Neubauer's chamber. |
| 4 | | TLC |
| 5 | | DLC |
| 6 | | ESR & PCV |
| 7 | | Reticulocyte count |
| 8 | | RBC Count |
| 9 | | Platelet Count |
| 10 | | Buffy coat preparation |
| 11 | | Coomb's Test - Direct & Indirect |
| 12 | | LE Cell |
| 13 | | Osmotic fragility Test |
| 14 | | PT/PC |
| 15 | | Blood grouping methods |
| 16 | | Uses of anti-coagulants |
| 17 | | Bone Marrow Aspirations |
| 18 | | Cell Count in Acute Leukemia |
| 19 | | Cell Count in Chronic Leukemia |
| 20 | | Examination of Malarial Parasite. |
| 21 | | Examination of Microfilaria. |
| 22 | | Fetal Hemoglobin |
| 23 | | Urine collection and preservation |
| 24 | | 24 hrs. Urine protein estimation |
| 25 | | Urine examination – Physical / Chemical |
| 26 | | Urine examination – Microscopy |
| 27 | | CSF examination. |
| 28 | | Semen examination |
| 29 | | Other body fluid examination |
| 30 | | Rh antibody titre |
| 31 | | Automation in haematology |

Curriculum
for
Practical :- First Year
Diploma in Lab Technician

| | | Topics |
|------------------|----|---|
| Practical | 32 | Normal & Molar |
| | 33 | Percentage |
| | 34 | Buffers |
| | 35 | Glucose |
| | 36 | Albumin |
| | 37 | Physical Examination |
| | 38 | Chemical Examination (Chloride, Sulphate, Urea, Ammonia, Phosphate) |
| | 39 | Physical Examination |
| | 40 | Chemical Examination (Protein, Glucose, Ketone Bodies, Bile Salt, Bile Pigment, Blood, Urobilinogen, Chyle, Phenyl Ketonuria, Alkaptonuria) |
| | 41 | Normal Value |
| | 42 | . Hyper Value & Hypo Value |
| | 43 | Normal Value |
| | 44 | Hyper Value |
| | 45 | Normal Value |
| | 46 | Hyper Value & Hypo Value |
| | 47 | Programming of Different Analytes |
| | 48 | Standardization |

Curriculum
for
Practical :- First Year
Diploma in Lab Technician

| Topics | |
|------------------|--|
| Practical | 49 Microscopy |
| | 50 Preparation of load for autoclaving & hot air sterilization |
| | 51 Autoclaving |
| | 52 Use of hot air oven |
| | 53 Disinfection |
| | 54 Preparation of Buffer & reagents |
| | 55 Preparation of Culture media (Selective medias) |
| | 56 Preparation of Culture media (Special medias) |
| | 57 Smear preparation |
| | 58 Use of centrifuges |
| | 59 Preparation of stains |
| | 60 Gram's staining |
| | 61 Zeihl Neelsen staining |
| | 62 Leishman / romanowsky staining |
| | 63 Albert's & other special staining |
| | 64 Inoculation of culture media-I |
| | 65 Inoculation of culture media-II |
| | 66 Drug Sensitivity Testing-I |
| | 67 Drug Sensitivity Testing-II |

Details of Curriculum for Second Year Diploma in Lab Technician

| PAPER 1st Theory | Topics | Hours. |
|--|---|--------|
| 1.Only relevant surgical & medical conditions (relevant to Lab technician). | 1. History taking. General examination of the patient. Filling Case-sheet. Common clinical words. | 05 Hrs |
| | 2. Hypertension:- Def, Causes, Pathology, Clinical features, Investigation & Management. | 03 Hrs |
| | 3. Hypotension :- Def, Causes, Pathology, Clinical features, Investigation & Management. | 01 Hr |
| | 4. Diabetes mellitus :- Def, Causes, Pathology, Clinical features, Investigation & Management. | 05 Hrs |
| | 5. <u>Diseases of blood</u> :- Anaemia, Basics of coagulation Bleeding disorders & Haemophilia. | 20 Hrs |
| | 6. <u>Respiratory Tract</u> :- Pneumonia, Tuberculosis, B.asthma, COPD, Bronchiectasis, Collapse of lung, Pneumonitis, Pleural effusion, Pneumothorax, Empyema thoracis, Cancer lung. | 15 Hrs |
| | 7. <u>Diseases of GIT & Liver & GB</u> :-Reflux Oesophagitis, Peptic ulcers, Gastritis, Intestinal Obstruction, Hepatitis, Cirrhosis of liver, Cholecystitis, appendicitis, Hernia, Piles, Fissure, Fistula, Pancreatitis, Pancreatic Cancer. | 20 Hrs |
| | 8. <u>Diseases of Nervous system</u> :- Stroke, Meningo-encephalitis, Glasgow coma scale, Epilepsy, Head Injury. | 20 Hrs |
| | 9. <u>Diseases of Urinary tract</u> :- Urolithiasis, Benign prostatic hyperplasia, Hydrocoele, Cancer prostate, urethral stricture, Hypo & epi-spadias. | 10 Hrs |
| | 10. <u>Endocrine system</u> :- Diabetes mellitus, hypo & Hyper thyroidism. | 05 Hrs |
| | 11. <u>Miscellaneous</u> :- Hypo & Hyper Natraemia, Hypo & Hyper Kalaemia, Hypo & Hyper Calcaemia. | 05 Hrs |
| | 12. <u>Infections diseases</u> :- TB, Typhoid, Malaria, Dengue fever, Leprosy, AIDS, Amoebiasis. | 15 Hrs |

Details of Curriculum for Second Year Diploma in Lab Technician

| PAPER 1st Theory | Topics | Hours. |
|--|--|--------|
| 1.Only relevant surgical & medical conditions (relevant to Lab technician). | 13. Head injury & Intracranial bleed. | 10 Hrs |
| | 14. D's of G& O: Caesarian section, fibroid uterus, Cancer uterus, prolapse uterus, PID. | 10 Hrs |
| | 15. Basics about fracture & management. | 15 Hrs |
| | 16. PIVD,Potts spine. | 05 Hrs |
| | 17. Oral cavity tumors. | 05 Hrs |
| | 18. Eye d's : Cataract, Glaucoma. | 05 Hrs |
| | 19. ENT:. CSOM, ASOM, Laryngeal tumor, Nasal poyp, DNS. | 06 Hrs |

Details of Curriculum for Second Year Diploma in Lab Technician

| PAPER 1st Theory | Topics | | Hours. |
|--|--------|--|--------|
| 2.Clinical Microbiology- II & Biochemistry- II. | 1 | Chemistry of Carbohydrate | 05 Hrs |
| | 2 | Chemistry of Protein | 05 Hrs |
| | 3 | Chemistry of Lipid | 05 Hrs |
| | 4 | Radioisotopes & Their Use in Biochemistry | 05 Hrs |
| | 5 | Principles of Electrophoresis | 05 Hrs |
| | 6 | Liver Function Test | 05 Hrs |
| | 7 | Renal Function Test | 05 Hrs |
| | 8 | Thyroid Function Test | 05 Hrs |
| | 9 | Body Fluid | 10 Hrs |
| | 10 | Quality Control | 05 Hrs |
| | 11 | Standardization | 05 Hrs |
| | 12 | Ultraviolet and Visible Light Spectroscopy | 03 Hrs |
| | 13 | Elisa | 10 Hrs |
| | 14 | Radioimmunoassay | 10 Hrs |
| | 15 | Polymerase Chain Reaction (PCR) | 10 Hrs |
| | 16 | Chromatography | 10 Hrs |
| | 17 | Spectrometry | 03 Hrs |
| | 18 | Point of Care Testing | 03 Hrs |
| | 19 | Introduction of Electrolyte & Water Balance | 03 Hrs |
| | 20 | Clinical Approach of Electrolyte & Water Balance | 03 Hrs |
| | 21 | Immunochemistry | 05 Hrs |
| | 22 | Automation in Clinical Biochemistry | 10 Hrs |
| | 23 | Collection of specimens | 03 Hrs |
| | 24 | Identification methods for various bacterias | 03 Hrs |
| | 25 | Methods to prepare Identification medias | 03 Hrs |
| | 26 | Lab diagnosis of diarrhoea | 03 Hrs |
| | 27 | Lab diagnosis of UTI | 03 Hrs |
| | 28 | Lab diagnosis of respiratory tract infection | 03 Hrs |
| | 29 | Lab diagnosis of meningitis | 03 Hrs |
| | 30 | Lab Diagnosis of Tuberculosis | 05 Hrs |
| | 31 | Lab diagnosis of wound infection | 03 Hrs |
| | 32 | Bacteriological examination of water & air | 03 Hrs |
| | 33 | Care and handling of lab animals | 03 Hrs |
| | 34 | Preservation of bacteria | 03 Hrs |

Details of Curriculum for Second Year
Diploma in Lab Technician

| PAPER 1st Theory | Topics | | Hours. |
|--|--------|---|--------|
| 2.Clinical Microbiology- II & Biochemistry- II. | 35 | Antigens and Antibodies | 05 Hrs |
| | 36 | Antigen-Antibody reaction | 05 Hrs |
| | 37 | Introduction and classification of viruses | 05 Hrs |
| | 38 | Lab diagnosis of virus including cultivation of viruses | 10 Hrs |
| | 39 | Medically important DNA viruses including HBV | 05 Hrs |
| | 40 | Medically important RNA viruses including HIV | 05 Hrs |
| | 41 | Introduction & classification of fungi | 05 Hrs |
| | 42 | Lab diagnosis of fungi | 03 Hrs |
| | 43 | Medically important fungi-I | 03 Hrs |
| | 44 | Medically important fungi-II | 03 Hrs |
| | 45 | Preparation of smears for fungus examination | 03 Hrs |
| | 46 | Media for fungal culture of Fungi | 03 Hrs |

Details of Curriculum for Second Year Diploma in Lab Technician

| PAPER 2nd Theory | Topics | | Hours. |
|--|--------|--|--------|
| 1.Histopathology & Cytopathology. | 1 | Instruments in Histopathology lab – 1. For grossing & for procesing. | 15 Hrs |
| | 2 | Instruments in Histopathology lab – 2. For section cutting & staining. | 15 Hrs |
| | 3 | Receiving of sample in Histopathology | 10 Hrs |
| | 4 | Registration of samples and record keeping | 05 Hrs |
| | 5 | Preservation of samples in Histopathology. | 05 Hrs |
| | 6 | Grossing of general pathology specimens. | 10 Hrs |
| | 7 | Grossing of respiratory system | 05 Hrs |
| | 8 | Grossing of GIT | 05 Hrs |
| | 9 | Grossing of Hepatobiliary system | 05 Hrs |
| | 10 | Grossing of male genital system | 05 Hrs |
| | 11 | Grossing of female genital system | 05 Hrs |
| | 12 | Grossing of breast tissue. | 05 Hrs |
| | 13 | Grossing of Urinary system | 05 Hrs |
| | 14 | Grossing of Bones | 05 Hrs |
| | 15 | Grossing of thyroid and and endocrine glands | 05 Hrs |
| | 16 | Grossing of Brain tissue | 05 Hrs |
| | 17 | Tissue Blocking and section cutting. | 10 Hrs |
| | 18 | Reagents in Histopathology. | 05 Hrs |
| | 19 | Staining of slides in Histopathology I (H & E). | 05 Hrs |
| | 20 | Staining of slides in Histopathology II (Retic/PAS/VG/Amyloid). | 10 Hrs |
| | 21 | Paraffin blocks filing. | 05 Hrs |
| | 22 | Slide filing in Histopathology | 05 Hrs |
| | 23 | Specimen mounting & Labeling. | 10 Hrs |
| | 24 | Cataloguing for museum. | 10 Hrs |
| | 25 | Instruments in Cytopathology laboratory. | 20 Hrs |
| | 26 | Receiving of samples in Cytopathology | 10 Hrs |
| | 27 | Preservatives used in Cytopathology | 10 Hrs |
| | 28 | Staining of slides in cytopathology-1: H & E. | 20 Hrs |
| | 29 | Staining of slides in cytopathology -2:Pap / gimsa | 20 Hrs |
| | 30 | Slide Filing of slides in Cytopathology. | 10 Hrs |

Details of Curriculum for Second Year Diploma in Lab Technician

| PAPER 2nd Theory | Topics | | Hours. |
|--|--------|---|--------|
| 2. Blood banking & Biomedical waste management. | 1 | Blood Banking - an introduction. | 05 Hrs |
| | 2 | Blood Bank setup and Functioning, sterilization & sancity. | 20 Hrs |
| | 3 | Common Blood groups. | 10 Hrs |
| | 4 | Rare blood groups. | 05 Hrs |
| | 5 | Genetics & Blood grouping methods. | 05 Hrs |
| | 6 | Cross matching. | 10 Hrs |
| | 7 | Preparation of grouping sera. | 05 Hrs |
| | 8 | Storage of Blood. | 10 Hrs |
| | 9 | Labeling & Maintenance of blood bags. | 05 Hrs |
| | 10 | Transportation of Blood bags. | 05 Hrs |
| | 11 | Preparation of different components of Blood-I | 05 Hrs |
| | 12 | Preparation of different components of Blood-II | 05 Hrs |
| | 13 | Immune sera – Types , production & uses . | 05 Hrs |
| | 14 | Screening tests done in blood bank – Diseases & methods- I | 05 Hrs |
| | 15 | Screening tests done in blood bank – Diseases & methods- II | 05 Hrs |
| | 16 | Rh antibody titre. | 05 Hrs |
| | 17 | Coombs test- Direct & Indirect. | 05 Hrs |
| | 18 | Blood transfusion reactions. | 05 Hrs |
| | 19 | Issuing the blood, madico-legal implications. | 05 Hrs |
| | 20 | Disposal of expired blood. | 05 Hrs |
| | 21 | Basics of Biomedical waste managment | 05 Hrs |

Curriculum
for
Practical :- Second Year
Diploma in Lab Technician

| | | |
|------------------|---------------------------------------|---|
| Practical | Topics | |
| | 1 | Grossing in General pathology |
| | 2 | Grossing of GIT |
| | 3 | Grossing of Hepatobiliary system |
| | 4 | Grossing of Female genital system |
| | 5 | Grossing of Breast tissue. |
| | 6 | Grossing of Urinary system |
| | 7 | Grossing of Bones |
| | 8 | Grossing of Thyroid and endocrine glands |
| | 9 | Staining of slides in Histopathology - H & E |
| | 10 | Staining of slides in Histopathology - PAS |
| | 11 | Staining of slides in Histopathology - AFB |
| | 12 | Staining of slides in Histopathology - GIEMSA |
| | 13 | Processing in Histopathology I |
| | 14 | Processing in Histopathology II |
| | 15 | Processing in Histopathology III |
| | 16 | Processing in Histopathology IV |
| | 17 | Blocking in Histopathology I |
| | 18 | Blocking in Histopathology II |
| | 19 | Section Cutting in Histopathology I |
| | 20 | Section Cutting in Histopathology II |
| | 21 | Section Cutting in Histopathology III |
| | 22 | Section Cutting in Histopathology IV |
| | 23 | Making Stain in Cytopathology I |
| | 24 | Making Stain in Cytopathology II |
| | 25 | Making Stain in Cytopathology III |
| | 26 | Making Stain in Cytopathology IV |
| | 27 | Making Stain in Cytopathology V |
| | 28 | Staining of slides in Cytopathology- H& E |
| | 29 | Staining of slides in Cytopathology - PAP |
| | 30 | Staining of slides in Cytopathology - AFB |
| | 31 | Staining of slides in Cytopathology - GIEMSA |
| | 32 | Blood Grouping And Cross Matching I |
| | 33 | Blood Grouping And Cross Matching II |
| 34 | Blood Grouping And Cross Matching III | |

Curriculum
for
Practical :- Second Year
Diploma in Lab Technician

| | Topics | |
|----|------------------|---------------------------------|
| | Practical | 35 |
| 36 | | Rh Antibody II |
| 37 | | Coomb's Test I |
| 38 | | Coomb's Test II |
| 39 | | Component Preparation I |
| 40 | | Component Preparation II |
| 41 | | Normal Value |
| 42 | | Hyper Value & Hypo Value |
| 43 | | Normal Value |
| 44 | | Hyper Value & Hypo Value |
| 45 | | Normal Value |
| 46 | | Hyper Value & Hypo Value |
| 47 | | Normal Value |
| 48 | | Hyper Value & Hypo Value |
| 49 | | Normal Value |
| 50 | | Hyper Value & Hypo Value |
| 51 | | Normal Value |
| 52 | | Hyper Value & Hypo Value |
| 53 | | T3 & T4 |
| 54 | | TSH |
| 55 | | PRL |
| 56 | | Centrifuge |
| 57 | | PH Meter |
| 58 | | Electrophoresis |
| 59 | | PCR |
| 60 | | Thin Layer Chromatography (TLC) |
| 61 | | Urine Sample |
| 62 | | Sputum |
| 63 | | Wound swab |
| 64 | | CSF |

Curriculum
for
Practical :- Second Year
Diploma in Lab Technician

| | Topics | |
|----|---|--|
| | Practical | 65 |
| 66 | | Animal inoculation |
| 67 | | Bleeding of mice & rabbit |
| 68 | | Collection of sheep blood aseptically |
| 69 | | Care and handling of lab animals |
| 70 | | Introduction and classification of parasites |
| 71 | | Medically important parasites -I |
| 72 | | Medically important parasites -II |
| 73 | | Procedure/Method of stool examination |
| 74 | | Preparation & staining of blood films for haemoparasite |
| 75 | | Preparation of blood film for Parasites |
| 76 | | Staining (Leishman, Geimsa) & Blood smear examination |
| 77 | | Demonstration of P.vivax, P. falciparum & filarial worms |
| 78 | | Preparation of stool smears (i) Saline (ii) Concentrated |
| 79 | | VDRL test |
| 80 | | WIDAL test |
| 81 | | Latex agglutination |
| 82 | | ELISA Test |
| 83 | Staining methods for fungus | |
| 84 | Preparation of smears for fungus examination-I | |
| 85 | Preparation of smears for fungus examination-II | |
| 86 | Preparation of media for culture of fungi | |