

SCL PARAMEDICAL COUNCIL OF INDIA

POST GRADUATE DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY

DURATION: 2 YEARS + 3 MONTHS

LEVEL: DIPLOMA AFTER GRADUATION

TYPE: DIPLOMA

ELIGIBILITY: GRADUATION

POST GRADUATE DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY IS A POST GRADUATE MEDICAL LABORATORY TECHNOLOGY COURSE. MEDICAL LABORATORY TECHNOLOGY ALSO CALLED CLINICAL LABORATORY SCIENCE WHICH IS AN ALLIED HEALTH PROFESSION WHICH IS CONCERNED WITH THE DIAGNOSIS, TREATMENT AND PREVENTION OF DISEASE THROUGH THE USE OF CLINICAL LABORATORY TESTS. DURING THE COURSE SOME OF THE TOPICS ARE TO BE COVERED. CLINICAL PATHOLOGY HEMATOLOGY. HUMUNOPATHOLOGY. MICROBIOLOGY, BLOOD BANKING, HISTOPATHOLOGY AND CYTOLOGY. THE DURATION OF P.G.D. MEDICAL LABORATORY TECHNOLOGY IS OF TWO YEARS BUT SOME INSTITUTES ARE OFFERING THIS COURSE ON THE BASIS YEAR.

POST GRADUATE DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY ELIGIBILITY

- Candidate should have passed their B.SC with preferably chemistry/ zoology with 40% marks.

POST GRADUATE DIPLOMA IN MEDICAL LABORATORY TECHNOLOGY SYLLABUS

Syllabus of medical laboratory technology as prescribed by various universities and colleges.

FIRST YEAR

1ST PAPER

GENERAL LABORATORY AND INSTRUMENT MAINTENANCE

1. Organization of laboratory and safety precaution in laboratory and personal cleanliness and care with regards to infected materials and clinical burns.
2. Quality assurance and disposal of wastes.
3. Cleaning of equipments and glass wares.
4. Maintenance and use of refrigerator, deepfrigers, incubators, ovens, water bath, autoclaves, centrifuges, anaerobic chambers, BOD incubators etc.
5. Maintenance and knowledge of various components of microscopes and application of various types of balances.
6. Principles and use of colorimeter, spectrophotometer, ELISA reader, turbidometers and auto – analyzer etc.
7. Use and maintenance of balances.
8. Simple glass manipulation includes the making of capillary tubes, Pasteur pipettes, glass sheet cutting.

2ND PAPER - CHEMICAL AND CLINICAL PATHOLOGY

1. Sample collection, preservation and transportation of various clinical pathology samples.
2. Preparation of buffers, molar solutions, normal solutions and determination of pH of buffers.
3. Biochemical estimation of total protein, albumin, globulin, sugar, cholesterol, urea, LFT, GTT, enzymes including preparation of their reagents.
4. Physical and chemical examination of urine including sugar, protein, acetone, bile salts, bile pigments, blood, urobilinogen, chyle and microscopic examination for crystals, cells and casts.
5. Examination of body fluids (CSF, ascetic fluid, pleural fluid, synovial fluid etc.) Including biochemical, microscopic.
6. Semen analysis (count, motility, abnormal forms etc.)

3RD PAPER - HEMATOLOGY AND BLOOD BANKING

1. Collection of blood, preparation and use of different anticoagulant vials, preparation of blood smears, staining of blood film, bone marrow smear and mounting of slides.
2. Preparation of reagents for hemoglobin, counting of leukocytes, RBC, platelet and reticulocyte count, determination of ESR and PCV, and techniques of these tests.
3. Recognition of blood cells in peripheral blood smears.
4. Preparation of haemolysate and determination of foetal hemoglobin and hemoglobin electrophoresis.
5. Preparation of reagents and techniques for test of sickling, osmotic fragility, G6PD enzyme deficiency, comb's test.
6. Preparation of reagents and techniques of coagulation profile, platelet profile.
7. Blood donor selection and screening including ABO, RH blood grouping and cross match tests.
8. Blood collection and preservation and component separation.
9. Identification of blood parasites (Malaria, Filarial, LD Bodies etc.)

SECOND YEAR

1ST PAPER - HISTOPATHOLOGY AND CYTOLOGY

1. Tissue reception. Labeling, fixation for different tissue and section cutting.
2. Preparation of paraffin blocks (dehydration, clearing, embedding, blocking.)
3. Handling and care of microtome, sharpening of razors, and section cutting.
4. Preparation of common stains H & E, Congo red, methyl violet, Leishman stain, Giesma, Papanicolaou, VG, PAS, PASM etc. and staining techniques.
5. Mounting of museum specimens, record keeping, indexing of slides.

2ND YEAR -

MICROBIOLOGY

1. Collection of samples, labeling and transportation of material and disposal of microbiology products. Cleaning and methods of sterilization of glassware's media, instruments including syringes, needles and sharp instruments.
2. Preparation of media, plugging of test tubes, preparation of swab sticks, stains reagents, nutrient agar, blood agar, chocolate agar loeffer's serum dorsetts egg medium fellurile medium , L.J. Medium, peptone water sugar media etc.
3. Processing of samples for isolation of bacteria from blood, CSF, tissue, sputum, throat swab, nasal, eye swabs, aural swab, vaginal swab, wound swab, rectal swab, urine, pleural fluid, ascetic fluid, AFB culture etc.
4. Biochemical reaction, acid production from fermentable substances coagulase, catalase, oxidase, bile solubility optochin sensitivity, indole production, M.R. test and V.P test. Urease activity citrate utilization etc.
5. Processing of sample for isolation of bacteria, blood , CSF, tissue sputum throat etc.
6. Drug sensitivity tests.
7. Staining method, gram stain, ziehl-nelsen stain, Albert's stain etc.
8. Motility preparation of cocci, corynebacteria, diphtheria, mycobacteria, gram negative bacilli and gram positive bacilli.
9. Stool examination (occult blood), microscopic and culture.
10. Sputum examination (general, cytological and microbiological).

3RD PAPER -

IMMUNOLOGY

1. Preparation of distilled water, deionized water and cleaning of distillation apparatus.
2. Collection of rabbits and sheep blood, animal care and raising of sera in animal.
3. Preparation of various buffers and reagents and techniques for following tests:
 - Agglutination tests
 - Haemagglutination tests
 - Precipitation tests and
 - Flocculation tests
4. Techniques of RA factor, CRP, ASO, VDRL, WIDAL, TORCH, auto antibodies, hepatitis, HIV testing and EBV etc.
5. Complement titration, hemolysin titration, aldehyde test ELISA Test, serum electrophoresis, gel electrophoresis, gel diffusion tests.
6. Preparation of slides of le cell phenomenon and identification.
7. Immune- histochemical staining methods for auto- antibodies and tumour markers.
8. Cutaneous sensitivity test.