

SYLLABUS FOR DIPLOMA IN CLINICAL PATHOLOGY(D.C.P.)

1. GOALS AND OBJECTIVES

1.1 D.C.P.

A diploma holder in the subject of Pathology (D.C.P.) is expected to be a specialist in the subject with adequate skill and competence

1.2 The diplomate is expected to supervise and carry out with moderate skill and competence most of the tasks pertaining to the speciality in the diagnosis, management and prevention of diseases .

1.3 The candidate should have adequate skill and competence to make confident interpretation in common histopathological, hematological and clinico-pathological problems including those in transfusion medicine .

1.4 The candidate should possess adequate knowledge and skill to carry out and interpret majority of microbiological and biochemical investigations .

1.5 The candidate must be able to select material and update the knowledge and skill in basic research procedures and new developments in the speciality

1.6 The candidate should be able to impart training to technicians and students on important basic laboratory procedures in different branches of the speciality

2. ELIGIBILITY

Those prescribed for M.D. (Path) is applicable .

3. DURATION OF COURSE

Duration of training shall be of 2 years (4 academic terms) . All other conditions are as that given for M.D. except that the accumulated leave which may be availed in the last term (Para 3.2) is limited to 60 days .

4. STUDENT TEACHER RATIO .

As given for M.D. (Pathology) Para 4

5. TRAINING SCHEDULE

Are as per that for M.D. (Path) . The stress is less on recent advances , research and a very high degree of proficiency in morbid anatomy and histopathology , where a moderate degree of proficiency is expected . More stress should be on practical aspects of clinical laboratory techniques in all branches of Pathology , Microbiology and clinical pathology .

The diploma holder should have an adequate theoretical knowledge to plan lab investigations rationally in any clinical set up and carry out and interpret the results . The teaching assignments of students may be confined to practical aspects of clinical pathology for U G students , lab technicians and other faculties dependant on the department for practical training purposes .

6 DISSERTATION

Dissertation is not mandatory for DCP students .

7 COURSE CONTENT

7.1 Theory

- (1) General Pathology including general neoplasia and immunopathology .
- (2) Systemic Pathology .
- (3) Haematology .
- (4) Blood banking including transfusion medicine .
- (5) Cytopathology .
- (6) Chemical Pathology .
- (7) Microbiology .

7.2 Practical training .

Hands on experience in techniques , their interpretations and reporting .

7.2.1 Morbid anatomy and histopathology

- (1) Collection of specimen , labelling , documentation , fixation .
- (2) Grossing techniques and tissue processing .
- (3) Cutting and staining of sections , use of special stains and immunocytochemistry , frozen sections
- (4) Interpretation and reporting .
- (5) Museum techniques .
- (6) Cytological techniques including FNAC – preparation , staining and reporting .
- (7) Autopsy techniques and grossing .
- (8) Immunohistochemistry and immunofluorescence.

7.2.2.1 Haematology and blood banking

- (1) Haemoglobin estimation , blood counts .
- (2) Staining and reporting of smears .
- (3) LE cells , ESR , Packed cell volume and absolute values .
- (4) Special staining methods for blood cells .
- (5) Investigations in haemolytic anemias and haemorrhagic disorders .
- (6) Blood bank serology , ABO grouping , Rh typing , special blood groups .
- (7) Blood banking , selection of donors , investigations in transfusion reactions

7.2.3 Clinical and chemical Pathology

- (1) Examination of urine , body fluids and stool .
- (2) Collection of blood , anti coagulants , protein precipitants .
- (3) Colorimetry , chromatography and electrophoresis .
- (4) Estimation of blood sugar , urea , creatinine , proteins , bilirubin , cholesterol , uric acid , electrolytes , calcium and enzymes .
- (5) Use of autoanalyzer techniques .

7.2.4 Microbiology and serology .

- (1) Collection , handling , documentation and section of material for important procedures .
- (2) Use of various microbiological stains .
- (3) Use of various culture media and identification of bacterias by specific procedures .
- (4) Antibiotic sensitivity tests .
- (5) Sterilization and disinfection .
- (6) Identification of fungi in specimen and culture .
- (7) Diagnostic procedures in important viral infections .
- (8) Serological techniques , Widal , Weil Felix , VDRL , HIV , HBV , CRP , RF , ASO and pregnancy tests .
- (9) ELISA AND CLIA
- (10) Use and care of lab animals and bio products .

7.2.5 RECENT ADVANCES

The student should be acquainted with the recent advances in the subject as published from time to time.

8 TEACHING METHODS

8.1 Theory

- Lectures , seminars , symposia , group discussion .
- Attendance in CME . work shops .
- Journal club , clinicopathological conferences .
- Grossing seminars .

8.2 Practicals

On job training in various sections – to participate in active bench work and by assigning special task under constant supervision by teaching faculty .

Suggested periods of postings in various departments are as under .

Total duration of training -	24 months
Morbid anatomy and histopathology	8 months
Cytopathology	3 months
Haematology and blood bank	4 months
Chemical pathology	3 months
Microbiology	3 months
Leave / evaluation	3 months

9 EVALUATION

9.1 Students are to maintain a detailed diary (log book) on day to day engagements , tasks accomplished and learning procedures undergone . The diary needs to be checked and evaluated every month by the guide of the student .

9.2 Internal assessment examination

Two internal assessment examination . (See evaluation for MD students)

9.3 Final examination

9.3.1 Theory

Theory examination shall have 3 papers each of 3 hours duration and of 100 marks each . The paper shall cover the topics in the following manner .

Paper I	Clinical pathology , Chemical pathology and clinical microbiology
Paper II	Haematology , transfusion medicine and immunology .
Paper III	General pathology , histopathology and cytology .

Each paper will have 2 long essay questions of 25 marks each and 5 short essay questions of 10 marks each .

9.4 Practicals

Practical examination shall be conducted under the following heads .

9.4.1	Clinical pathology	-	Total	40 marks
	(i) Clinical case discussion			10 marks
	(ii) Urine analysis			20 marks
	(iii) Other fluids , CSF,Semen , stool			10 marks
9.4.2	Haematology and immunohaematology		Total	60 marks
	(i) Major exercise			20 marks
	(ii) Minor exercise			20 marks
	(iii) Slides 5 (Bone marrow 2 , PS 3)			20 marks
9.4.3	Chemical Pathology		Total	35 marks
	(i) Clinical case discussion			10 marks
	(ii) Biochemistry exercise			25 marks
9.4.4	Clinical microbiology		Total	50 marks
	(i) Bacteriology Long exercise			20 marks
	(ii) Bacteriology Short exercise			10 marks
	(iii) Serology			20 marks

9.4.5	Morbid anatomy and histopathology	Total 65 marks
	(i) Autopsy / Surgical pathology – grossing	15 marks
	(ii) H & E staining	5 marks
	(iii) Block making , cutting	5 marks
	(iv) Slide reporting (H P 8 , Cyto 2)	40 marks

9.4.6	Grand viva	Total 50 marks
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Grand total	300 marks
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9.4.7 The requirement of examiners and conduct of the practical examination shall be like that prescribed for MD examination .

9.5 Standard for passing is similar to that prescribed for MD examination viz- 50 % of full marks in theory papers taken together as one head and 50 % of full marks for practicals and viva taken together as another head .

10. TEXT BOOKS AND JOURNALS RECOMMENDED

10.1 TEXT BOOKS

- Robbins Pathological Basis of disease – 8th Edition
- General Pathology by J.R.Walter and Israel – 7th edition
- Andersons Pathology - LINDER – 10th Edition
- Surgical Pathology – Ackermans – Jaun Rosai – 10th Edition
- Diagnostic Surgical Pathology – S S Sternberg – 5th Edition
- Systemic Pathology . W St C Symmers
- Soft Tissue Tumors - F M Enzinger , S W Weiss – 3rd edition
- Rosen’s Breast Pathology – P P Rosen
- Pathology of the Gastrointestinal tract – S I Chun Ming
- Haines and Taylor – Obstetrical and Gynaecological Pathology – H Fox – 5th Edn
- Herpininstall’s Pathology of the Kidney – J C Jenette – 6th Edition
- Lever’s Histopathology of the Skin – D Elder – 8th edition
- Theory and Practices of Histopathological techniques – Bancroft J D – 4th Edn
- Manual and Atlas of Fine Needle Aspiration Cytology – S R Orell-5th Edn
- Diagnostic Cytology and its Histopathologic basis – H G Koss-5th Edn
- Post Graduate Hematology – A V Hoffbrand-4th Edn
- Wintrobe’s Clinical Hematology – Lee G R-10th Edn
- Practical Hematology – Dacie J V – 9th Edn
- Clinical Diagnosis and Management by Laboratory Methods – J B Henry-21st Ed
- Medical Microbiology – Cruick Shank
- Ananthnarayan & Paniker’s Text book of Microbiology – 8th Edn
- Laboratory practice in tropical countries – Monica Cheesbrough (Part I , II)
- Parasitology by K.D.Chatterjee
- Medical Microbiology by Greenwood Slack Pentherer
- Short Text Book of Chemical Pathology – Baron
- Essentials Immunology – Roitt – 9th Edn

- Manual of Atlas of Autopsy Pathology – FINBEINER
- Transfusion Methods – Mollison
- Rubins – Clinicopathologic foundation of Medicine -5th Edn
- Color Atlas & Text of Pulmonary Pathology – Cagle-2nd Edn
- Orthopaedic Pathology – Peter Bullough- 4th Edn
- Comprehensive cytopathology – Bibbo – 3rd Edn
- Atlas & text book of haematology – Dr.Tejinder Singh
- Biochemistry- Harper,s Biochemistry – Text book of Biochemistry

- W.H.O.
 - i)- Soft tissue & bone
 - ii)- Lymphoid haemopoietic tissue
 - iii)- Urinary system & GT
 - iv)- Breast & FGT
 - v)- Digestive system
 - vi)- CNS

10.2 JOURNALS

- The American Journal of Surgical Pathology
- The American Journal of Pathology
- Acta Cytologica
- Human Pathology
- Laboratory investigations
- Archives of Pathology and Laboratory Medicine
- The American Journal of Hematology
- The American Journal of Clinical Pathology
- British Journal of Hematology
- Blood
- Histopathology
- Diagnostic Cytopathology
- Indian Journal of Pathology and Microbiology
- Journal of Pathology
- Journal of Clinical Pathology
- Journal of cytology

10.3 PERIODIC PUBLICATIONS

Recent advances in histopathology , Clinical Pathology
 Virchows Archives
 Year book series
 Pathology Annual
 Progress in Pathology series