



College of Physicians and Surgeons of Mumbai

Syllabus for CPS-PG-Course

DPB-DIPLOMA IN PATHOLOGY AND BACTERIOLOGY

College of Physicians and Surgeons of Mumbai

CPS House, Dr. E. Borges Marg, Parel, Mumbai – 400012.

DPB-DIPLOMA IN PATHOLOGY AND BACTERIOLOGY

GOAL

The goal of postgraduate medical education shall be to produce competent specialist -

- (i) Who shall recognize the health needs of the community and carry out professional obligation ethically and in keeping with the objectives of the national health policy;
- (ii) Who shall have mastered most of the competencies, retaining to the specialty that are required to be practice at the secondary and tertiary levels of the health care delivery system.
- (iii) Who shall be aware of contemporary advances and developments in the discipline concerned.
- (iv) Who shall have acquired a spirit of scientific inquiry and oriented to the principles of research methodology and epidemiology; and
- (v) Who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

OBJECTIVES

At the end of the course a candidate must be able to -

- (i) Understand and explain about the factors in causation of disease.
- (ii) Understand processes involved in the gross and microscopic changes of organs and tissues and explain these changes.
- (iii) Understand and explain the basis of evolution of clinical signs and symptoms.
- (iv) Should be able to perform procedures designated for laboratory detection of diseases. Should be able to process and accurately interpret the representative materials obtained from the patients in order to arrive at a correct diagnosis.

- (v) Should be able to recognize and report morphological changes in cells, tissues and organs.
- (vi) Should be able to plan, perform and report specific research projects.
- (vii) Should be able to perform clinical autopsy and present CPC (Clinico-Pathological Correlation)
- (viii) Should be able to perform and report in the field of Transfusion medicine.

COURSE DESCRIPTION

Eligibility :A candidate should possess MBBS degree/ equivalent degree as per provisions of Indian Medical Council Act.

Duration :2 Years

Posting schedule:

Posting for D.P.B.	Duration
Histopathology and Autopsy	10 months
Clinical pathology	10 months
Haematology	
Cytopathology	
Blood Bank	
Biochemistry	2 months
Serology	
Museum	
Revision in all sections	2 months
TOTAL	24 months

METHODS OF TRAINING

Duration of course: DPB (2 years). : **on job training**

- Histopathology including techniques and reporting

- Cytology including FNAC, fluid cytology, exfoliate cytology- techniques and Reporting
- Haematology including blood banking and transfusion medicine techniques and Reporting
- Clinical pathology- techniques and reporting
- Museum techniques
- Autopsy techniques and interpretation
- Serology- techniques and reporting
- Handling of hazardous material
- Handling, maintenance and calibration of instruments used in laboratory
- Undergraduate teaching

P.G. Teaching sessions

- Journal review
- Subject seminar
- Grossing discussions for autopsies and surgical material
- Slide seminar including histopathology, haematology, and cytopathology
- Clinical case- group discussion
- Interdepartmental seminars
- Post graduate students should be encouraged to attend CME, Workshops, Conferences & present papers.

TEACHING /LEARNING CONTENT:

A. THEORY

I BASIC SCIENCES

1. Anatomy/ Histology of all structures in human body/organs
2. Physiology and biochemistry – Basic aspects of various metabolism and functioning of endocrines
3. Genetics- Fundamental / Applied aspects
4. Biostatistics

5. Biomedical ethics- Ethical issues related to Medical practice and research.

II PATHOLOGY

1. Historical aspects
2. General pathology
3. Systemic pathology
4. Hematology
5. Blood banking and Transfusion Medicine
6. Cytopathology
7. Clinical Pathology
8. Medical autopsy: Techniques and interpretation
9. Recent advances in all fields, related to Pathology
10. Organization of laboratory including quality control.

III. CLINICALBIOCHEMISTRY:

Routine biochemical investigations and various organ function tests i.e. LFT, RFT etc.

PRACTICAL

Proficiency of technological methods should include the following:

Theoretical knowledge:-

1. Gross pathology and histopathology
2. Haematology
3. Cytopathology
4. Clinical pathology and Blood bank.

Laboratory services.

1. Clinical chemistry
2. Serology

Techniques to understand and interpret data

1. Immunopathology
2. Histochemistry

3. Immuno-histo-chemistry
4. Cytogenetics
5. Molecular biology
6. Medical statistics

IV. CYTOLOGY

1. Fine needle aspiration cytology – Staining & interpretation.
2. Cytology of body fluids – Staining and Interpretation

V. HISTOPATHOLOGY

- a. Histopathologic techniques including section cutting.
- b. Haematoxylin and Eosin stain and special stains which include PAS stain, Acian blue stain, Reticulin stain, Masson's Trichrome and Pearl's Prussian Blue stain.
- c. Principles of immune histo chemistry and immunofluorescence.

VI. HEMATOLOGY

- a. Anticoagulants
- b. Preparation of Leishman's stain and reagents for blood counts.
- c. Hands on experience in different methods of Hemoglobin estimation
- d. RBC, WBC, Platelets and Peripheral smear and Bonemarrow.
- e. Preparation and interpretation of Peripheral smear and Bone marrow.
- f. Hemolytic workup incl. sickle cell preparation, Hb F & electrophoresis etc.
- g. Cytochemistry –Peroxides/Sudan black B, PAS, LAP, NSE and Perl's stain.
- h. Quality Control and use of automated cell counters.
- i. Cleaning of Glassware.

VII. BLOODBANK

- a. Blood grouping and typing
- b. Cross-matching
- c. Comb's tests

- d. Donor screening and blood collection
- e. Testing for STS, HIV, Hepatitis B & C
- f. Rh antibody titration
- g. Cold agglutinin titre
- h. Quality control.

VIII. CLINICALBIOCHEMISTRY

Basic Biochemistry applied to biochemical investigations: Handling of Photo colorimeter, Spectrophotometer pHmeter, Flame photometer, Semi Auto analyser and Auto analyser, Electrophoresis, carrying out biochemical investigations like blood sugar, urea, creatinine, proteins, bilirubin, SGOT, SGPT, Alkaline phosphatase, etc.

Theory

- **General Pathology**
 - Cellular adaptation cell injury and cell death
 - Acute and chronic inflammation
 - Tissue renewal and repair: Regeneration healing and fibrosis.
 - Hemodynamic disorders, thrombo-embolic disease and shock.
- **Genetic Disorders:** Principles of genetics, normal karyotyping, Mutations, Mendelian disorders, disorders with multi factoral inheritance, cytogenetic disorders involving autosomes and sex chromosomes., Single gene disorders with nonclassic inheritance., Diagnosis of genetic disorders involving molecular and genetic techniques.
- **Neoplasia:** Definition, nomenclature and biology of tumor growth. Molecular basis of cancer with special reference to carcinogenic agents and molecular basis of multistep carcinogenesis, Epidemiology and clinical features of tumors, Grading, staging and laboratory diagnosis of cancer.
- **Infectious Diseases:** General principles of microbial pathogenesis, bacterial, fungal, parasitic and viral infections.
- **Environmental and nutritional pathology:** Common environmental and occupational exposures leading onto disease. Nutritional deficiencies and obesity related disorders.
- **Disease of Infancy and Childhood:** Congenital anomalies, birth injuries, diseases of

neonates, inborn errors of metabolism, tumor and tumor like lesions of infancy and childhood.

Systemic Pathology

- **Blood vessels, lymphatic and veins:** Normal morphology, congenital anomalies, atherosclerosis, hypertensive vascular disease. Inflammatory and neoplastic diseases of all the vessels.
- **Heart:** Normal morphology, its blood supply and effect of aging on heart. Ischemic, hypertensive, valvular, congenital heart diseases and cardiomegaly, Pericardial diseases. Tumors of the heart.
- **Lungs :** Congenital anomalies, Obstructive and restrictive pulmonary diseases., Diseases of vascular origin., Infections and tumors of lung, Lung transplantation, Diseases of pleura.
- **Head and Neck:** Oral cavity: - inflammatory disease and tumors, Diseases of teeth and supporting structures., Upper airways and ear – congenital anomalies, infections and tumors, Salivary glands – Infections, autoimmune disorders and tumors. Thymus – Developmental, autoimmune and inflammatory disorder and tumors.
- **Gastro Intestinal Tract:** Diseases of Oesophagus, stomach, small and large intestines, appendix and anal canal. Diseases of the peritoneum
- **Liver:** Normal morphology with general features of hepatic disease including LFTs. Infectious, autoimmune, drug induced, metabolic and circulatory disorders of liver. Hepatic diseases associated with pregnancy, neonates, organ and bone marrow transplantation, Liver transplantation, Nodules and tumors of liver.
- **Biliary tract:** Congenital anomalies, injuries, Gallstones, cholecystitis and tumors of gall bladder and extra hepatic bile ducts.
- **Pancreas:** Congenital anomalies, pancreatitis and neoplasms of pancreas.
- **Kidney:** Clinical manifestations of renal diseases. Congenital anomalies. Diseases affecting glomeruli, tubules, interstitium and blood vessels. Cystic diseases of kidney. Tumors of kidney.
- **Lower urinary tract and male genital system:** Congenital anomalies, inflammation and tumors of ureter, urethra, penis, testis and epididymis. Inflammation, enlargement and tumors of prostate.
- **Female genital tract:** Embryology, Anatomy, Physiology and histology of female genital tract. Congenital anomalies, inflammation and tumors of vulva, vagina, cervix, uterus, fallopian tubes and ovaries. Gestational and placental disorders.
- **Breast:** Inflammations, benign epithelial lesions and tumors of the breast. Diseases of

male breast.

- **The Endocrine System:** Normal hormonal levels and functions of all the endocrine glands. Hypo and hyperactivity of glands of endocrine system i.e. pituitary, thyroid, parathyroid, pancreas, adrenals and pineal gland. Autoimmune diseases, inflammations and tumors affecting these glands.
- **Skin:** Disorders of pigmentation and melanocytes, Inflammatory, vesiculobullous and infectious disease, Tumors of the epidermis, dermis and skin appendage.
- **Musculoskeletal system**
 - **Bones:** Modeling, growth and development, genetic and acquired abnormalities in bone cells, matrix and structure, features of necrosis and infections of bones, tumors and tumor like lesions
 - **Joints:** Arthritis, tumor and tumor-like lesions.
 - **Soft tissue :** tumor and tumor-like lesions.
 - Peripheral nerves and skeletal muscles, General reactions of motor units.
- **Central Nervous System:** Degenerative, metabolic, toxic, demyelinating, infectious, cerebrovascular malformations and traumatic injuries of skeletal muscle bundles. Tumors
- **Eye:** Infections, inflammatory, congenital diseases and neoplasms of orbit, eyelid, conjunctiva, sclera, uvea, cornea, retina and optic nerves.
- **General Cytology:** Origin & principles with stress on basic structure of a mammalian cell. Recognition and classification of different cell types. Fundamental concepts of neoplasia – Benign & malignant.
- **Cytology of:** Female Genital Tract, Respiratory tract, GIT, kidney & lower urinary tract, Breast cytology, Cytology of thyroid, lymph nodes, neck masses, Skin, Bone & Soft tissue, Cytology of common lesions
- **Cytology of** Liver, Spleen, Pancreas, Retroperitoneum, Abdominal lumps
- Cytology of neoplastic and non-neoplastic lesions
- Cytology of Testis & Prostate
- Cytology of all effusions & fluids in absence as well as presence of cancer.
- **Haematology:** Clinical Correlation, Signs & Symptoms, General & Systemic examination with various haematological disorders.
- **Biology of stem cell & disorder of Haematopoiesis.**
- **Erythroid maturation, differentiation and abnormality.**

- Pathobiology of human erythrocyte & Haemoglobin. Anaemias
- **WBC disorders, complement and immunoglobulin biology**
- **Haematological malignancies**
- **Haematopoietic stem cell transfusion**
- **Immunodeficiency** state, Genetic disorders haematological Malignancies and Non-haematological disorders. Practical aspect of umbilical cord stem cells transplantation. Peripheral stem cell collection. Role of stem cell in tissue repair. Complications of Haematopoietic stem cell transplant. Gene transfer for haematological disorders.
- **Haemostasis &Thrombosis.**
- **Human blood group antigen and antibody**
- **Haematological manifestations of various diseases like liver disorders, renal disorders, infections, cancers, AIDS and Parasitic diseases.**
- **Haematological problem in surgical patients.**
- **Spleen and its disorders.**
- **Cytokines with details about their properties and functions.**
- **Disorders of the immune system.**
- **Amyloidosis including pathogenesis, special stains & clinical correlation.**
- **Transplant rejection in detail**

PRACTICAL

- Histopathology
 - Cytopathology
 - Haematology
 - Clinical Pathology
 - Immunopathology
1. Agglutination Reactions- Principle, Techniques & practical Applications
 2. All tests based on ELISA – Principle, Techniques & practical Applications
 3. Protein electrophoresis – Principle, Technique & practical applications
 4. Immuno electrophoresis
 5. Detailed knowledge of ANA & ANCA profile

6. Immunohistochemistry Principle, Techniques & Practical Applications
7. Immuno fluorescence – Principle, Techniques & Practical Applications
8. RIA (Radio immunoassay) Principle, Techniques & Practical Applications
9. PCR- Principle, Techniques & Practical Applications
10. FISH, CISH, SKY –Principle, Techniques & Practical Applications
11. Flow Cytometry- Principle, Techniques & Practical Applications
12. Blot techniques – Principle, Techniques & Practical Applications

IX GENERAL MICROBIOLOGY

1. History and pioneers in Microbiology
2. Microscopy
3. Morphology of bacteria and other micro-organisms.
4. Nomenclature and classification of microbes.
5. Growth and nutrition of bacteria.
6. Bacterial metabolism.
7. Sterilization and disinfection.
8. Biomedical waste disposal
9. Bacterial toxins.
10. Bacterial antagonism: Bacteriocins.
11. Bacterial genetics, gene cloning.
12. Antibacterial substances used in treatment of infections and drug resistance in bacteria.
13. Bacterial ecology-normal flora of human body, hospital environment, air, water and milk
14. Host parasite relationship.
15. Quality control and Quality Assurance in Microbiology.
16. Laboratory Bio-safety
17. Health care associated infections- prevention and control

X. IMMUNOLOGY AND APPLIED ASPECTS

1. The normal immune system.

2. Innate immunity.
3. Antigens.
4. Immunoglobulins.
5. Complement.
6. Antigen and antibody reactions.
7. Hypersensitivity.
8. Cell mediated immunity.
9. Immunodeficiency.
10. Autoimmunity.
11. Immune tolerance.
12. Transplantation immunity.
13. Tumour immunity.
14. Prophylaxis and immunotherapy
15. Measurement of immunity.
16. Immunity and immune pathogenesis of specific infectious diseases
17. Molecular Biology Techniques. For e.g. PCR, DNA probes.

PRACTICAL

Proficiency of technological methods should include the following:

1. Fields in which high degree of professional competence and theoretical knowledge is expected:-
 - a) Gross pathology and histopathology
 - b) Haematology
 - c) Cytopathology
 - d) Clinical pathology and Blood banking
2. Fields in which student is expected to achieve reasonable working knowledge and skills to be able to run laboratory services independently
 - a) Clinical chemistry
 - b) Serology
3. Fields in which student is expected to achieve general acquaintance of techniques to understand and interpret data

- a) Immunopathology
- b) Histochemistry
- c) Immunohistochemistry
- d) Cytogenetics
- e) Molecular biology
- f) Medical statistics

ADDITIONAL READINGS:

1. Compendium of recommendations of various committees on health and development (1943 to 1975) DGHS, 1985 Central Bureau of Health Intelligence, DGHS, Ministry of Health & Family Welfare, Govt. of India, Nirman Bhavan, NewDelhi-335.
2. National Health Policy, Ministry of Health & Family Welfare, Govt. of India, Nirman Bhavan, New Delhi-335.1983.
3. ICMR, Policy, Statement of ethical considerations involved in research on Human subjects, 1982 ICMR, New Delhi.
4. Code of Medical Ethics framed under Section- 33 of Indian Medical Council Act, 1956 .MCI, Kotla road, NewDelhi.
5. Santosh Kumar, The elements of Research ,writing and editing 1994,Dept.of Urology, JIPMER, Pondicherry
6. Srinivas D.K et al, Medical Education Principles and Practices,1995.NationalTeacher Training Centres, JIPMER, Pondicherry
7. Francis C.M Medical Ethics, J.P.Publication,Banglore1993
8. Indian National Science Academy, Guidelines for care and use of animals in scientific research, New Delhi,1994
9. International Committee of Medical Journal Editors, Uniform Requirements for manuscripts submitted to biomedical journal. N. Engl J Med., 1991;424-8
10. Kirkwood B.R. Essentials of Medical Statistics, 1st ed. Oxford Blackwell Scientific Publications1988
11. Mahajan B.K. - Methods in Biostatistics for medical students, 5th ed New Delhi,Jaypee Brothers MedicalPublishers,1989
12. Raveendran B.Gitanjali, A Practical Approach to PG dissertation, NewDelhi. J.P Publications1998.

DPB-DIPLOMA IN PATHOLOGY AND BACTERIOLOGY**EXAMINATION PATTERN****Theory Examination:**

PAPER I		PAPER II		PAPER III	
Pathology, morbid anatomy, histopathology, Blood bank		General microbiology, systemic bacteriology, virology, parasitology and mycology		Biochemistry including recent advances in pathology and microbiology	
Section I		Section I		Section I	
Q.1.	10Marks	Q.1.	10Marks	Q.1.	10Marks
Q.2.	10Marks	Q.2.	10Marks	Q.2.	10Marks
Q.3.	10Marks	Q.3.	10Marks	Q.3.	10Marks
Q.4.	10Marks	Q.4.	10Marks	Q.4.	10Marks
Q.5.	10Marks	Q.5.	10Marks	Q.5.	10Marks
Total	50Marks	Total	50Marks	Total	50Marks
Section II		Section II		Section II	
Q.6.	10 Marks	Q.6.	10 Marks	Q.6.	10 Marks
Q.7.	10 Marks	Q.7.	10 Marks	Q.7.	10 Marks
Q.8.	10 Marks	Q.8.	10 Marks	Q.8.	10 Marks
Q.9.	10 Marks	Q.9.	10 Marks	Q.9.	10 Marks
Q.10.	10 Marks	Q.10.	10 Marks	Q.10.	10 Marks
Total	50 Marks	Total	50 Marks	Total	50 Marks
Section I + II = 100 Marks		Section I + II = 100 Marks		Section I + II = 100 Marks	
Total Theory = 300 Marks, Passing = 150 (i.e. 50%) Marks in aggregate					

Practical Examination:		Marks
Paper - IV	H.P.Slides, H.P.Tech., Grossing & Viva	100
Paper - V	Haematology Hemat/Cyto Slides Urine, Transf. Medicine Biochem. & Viva	100
Paper - VI	Microbiology Culture, Mycology, Paracytology, AFB, Serology & Viva	100
Total Marks	(Aggregate marks for passing is 50% out of total.)	300

BOOKS:

1. Cotran, Kumar, Collins. Robin's Pathologic Basis of Disease, published by W.B. Saunders & Company.
2. Ivan Damjanov, James Linder. Anderson's Pathology, published by C.V.Mosby Company.
3. J.B.Walter, M.S.Israel.General Pathology, published by Churchill Livingstone.
4. Emeritus W. ST. Symmers Systemic Pathology, published by Churchill Livingstone.
5. Juan Rosai, Ackerman's Surgical Pathology, published by C.V.Mosby Company.
6. Leopold G Koss, Diagnostic cytology and its histopathologic basis published by J.B. Lippincott Company.
7. Marluce Bibbo, Comprehensive cytopathology, published by W.B Saunders Company
8. Winnifred Grey, Diagnostic cytopathology, published by Churchill Livingstone
9. Orell, Sterrett- Walters and Whittaker, Fine Needle Aspiration Cytology (Manual & Atlas), published by Churchill Livingstone
10. Greer J.P, Foerster J, Jukens J et. al Wintrobe's Clinical Haematology, published by Lippincott Williams and Wilkins
11. Firkin F, Chesterman C, Penington D, deGruchy's Clinical Haematology in Medical Practice, published by Blackwell Sciences
12. Henry J.B., Clinical Diagnostics and Management by Laboratory Methods. Published by W.B. Saunders & Company.
13. Lewis S.M, Bain D.J, Bates I, Dacie & Lewis Practical Haematology published by Churchill Livingstone.
14. Hoffbrand A.V, Catovsky.D, Tuddenham G.D, Postgraduate Haematology—published by Blackwell publishing
15. R.Anantnarayan , C.K.Paniker, Textbook of Microbiology , published by Orient Longman.
16. Harsh Mohan, Textbook of pathology , published by Jaypee.
17. Parasitology (Protozoology & Helminthology.) in relation to clinical medicine – K.D.Chatterjee – published by Chatterjee Medical Publication.
18. Sudha R.Kini, Colour Atlas of differential diagnosis in exfoliative and aspiration cytopathology , published by Lippincott, Williams & Wilkins.
19. Praful B. Godkar, Clinical Biochemistry – Principles & practice, Published by Bhalani Publishing House, Bombay.
20. Theory & practice of Histological Techniques edited by John.D.Bancroft. Published by Churchill Livingstone.

21. Enzinger & Weiss, Soft Tissue Tumours, Published by B.I.Publications (India.)
C.V.Mosbycompany.
22. Elder D.E, Lever's Histopathology of the skin – Published by J.B.Lippincott Company.
23. Novak & Woodruff Edited, Novak's Gynaecologic and ObstericPathology, published by –
KiakuShoin/Saunders.
24. Christopher D.M., Fletcher, Diagnostic Histopathology of Tumours Vol.1&2- published by
ChruchillLivingstone.
25. Recent advances in Histopathology, Haematology, Blood coagulation etc.
26. AFIP, Atlas of tumour pathology.
27. Interpretation of Breast Biopsies –Carter
28. Day D.W, Jass J.R, Price A.B, Morson and Dawson's Gastrointestinal Patholgy, published by
Blackwell publishing
29. Ellison D, Love S, Chimelli L et. al, Neuropathology , published by Mosby
30. Epstein Prostate Biopsy Interpretation, published by Lippincott-Raven
31. Fogo A.B, Kashgarian M, Diagnostic Atlas of Renal Pathology, published by Elseiver Saunders
32. Foster C.R, Pathology of the Urinary Bladder, published by Saunders
33. Fox H, Wells M , Haines & Taylor - Obstetric and Gynaecological Pathology, published by
ChruchillLivingstone
34. Ioachim H.L, Lymphnode Pathology, published by Lippincott
35. Kilpatrick, Renner, Diagnostic Musculoskeletal Surgical Pathology, Clinicoradiologic &
cytologic correlations, published by Saunders
36. Kurman R.J, Blaustein's pathology of the female genital tract, published by Springer
37. Leslie K.O, Wick M.R, Practical pulmonary pathology; a Diagnostic approach, published by
ChurchillLivingstone
38. MacSween, Butt, Portman et al, Pathology of the liver- published by Churchill Livingstone
39. Mills S.E, Sternberg's diagnostic surgical pathology, published by Lippincott Williams
and Wilkins
40. Montgomery E.A, Biopsy interpretation of the Gastrointestinal Tract Mucosa, published by
Lippincott Williams and Wilkins
41. Odze R.D, Surgical pathology of the GI Tract, Liver, Biliary Tract and Pancreas, published
by Saunders
42. Owen D, Pathology of the Gall Bladder , Biliary Tract and Pancreas, published by Saunders
43. Pilch B.Z, Head and Neck surgical pathology, published by Lippincott Williams and Wilkins

44. Rosen P, Pathology of Breast, published by Lippincott Williams and Wilkins
45. Silverberg S.G, Atlas of Breast pathology, published by Saunders
46. Weedon, Skin Pathology, published by Churchill Livingstone
47. Wickremasinghe, Blood and Bone marrow pathology, published by Churchill Livingstone
48. Atkinson B, Atlas of diagnostic pathology, published by Saunders
49. Cibas E.S, Cytology: Diagnostic principles and clinical correlates, published by Saunders
50. Geisinger, Modern cytopathology
51. Naib Z.M, Cytopathology, published by Little Brown and company
52. Meisels A, Morin C, Cytopathology of the uterine Cervix, published by ASCP Press
53. Miettinen M, Diagnostic soft tissue pathology, published by Churchill Livingstone
54. Chandler F.W, Pathologic diagnosis of fungal infection, published by ASCP Press
55. Collins R.D, Paediatric Haematopathology, published by Churchill Livingstone
56. Hoffman, Benz, Shattil, Haematology : Basic principles and practice, published by Churchill Livingstone
57. Naeim F, Atlas of bone marrow and blood pathology, published by W.B. Saunders
58. Tkachuk D.C, Atlas of clinical haematology, published by Saunders
59. WHO Classification of tumours, published by IARC Press.
60. Mollison P.L, Blood transfusion in clinical medicine, published by Oxford, ELBS & Blackwell Scientific Publication
61. Chitale A, Pathology of urinary & male genital system for urologists, general surgeons & Pathologists published by B. I. Publications
62. Saran R.K., Transfusion medicine technical manual, published by WHO

JOURNALS:

1. British Journal of Haematology, published by Blackwell Sciences.
2. CANCER, International journal of American Cancer Society, published by John Wiley & Sons Inc.
3. Journal of Clinical Pathology, published by B.M.J.
4. Haematology/Oncology Clinics of North America, published by W.B. Saunders & Company.
5. American Journal of Surgical Pathology, published by Lippincott & Raven
6. Indian Journal of Pathology & Microbiology, published by IAPM.
7. Indian Journal of Cancer, published by Indian Cancer Society.

8. Indian Journal of Cytology, published by IAC.
9. LANCET published by Elsevier
10. I.C.M.R. Bulletin, published by ICMR
11. Histopathology, journal of the British Division of the International Academy of Pathology-
Published by Blackwell Science
12. Acta Cytologica, The Journal of Clinical Cytology and Cytopathology
13. Archives of Pathology and Laboratory Medicine-Published by American Medical
Association
14. Human Pathology- Published by W.B. Saunders & Company.
15. American Journal of Clinical Pathology published by ASCP
16. Indian Journal of Cytology
17. WHO Bulletin published by WHO
18. Modern Pathology.