

बी.पी. कोइराला मेमोरियल क्यान्सर अस्पताल
प्राविधिक (स्वास्थ्य) सेवा, मेडिकल (चिकित्सक) समुह, मेडिकल अंकोलोजी (हेमाटोलोजी) उपसमुह, अधिकृत नबौ
तह, रजिष्ट्रार पदको खुला र आन्तरिक प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

यस पाठ्यक्रम योजनालाई दुई चरणमा विभाजन गरिएको छ :

प्रथम चरण :- लिखित परीक्षा (Written Examination)

पूर्णाङ्क :- २००

द्वितीय चरण :- अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ३०

परीक्षा योजना (Examination Scheme)

प्रथम चरण (First Phase) : लिखित परीक्षा

Paper	Subject	Full Marks	Pass Marks	No. Questions & Weightage	Time Allowed
I	General Subject	100	40	10 × 5 = 50 (Short answer) 5 × 10 = 50 (Long answer)	3.00 hrs
II	Technical Subject	100	40	6 × 10 = 60 (Long answer) 2 × 20 = 40 (Problem Solving)	3.00 hrs

द्वितीय चरण (Second Phase)

Subject	Full Marks	Examination
Interview	30	Oral

द्रष्टव्य :

- यो परीक्षा योजनालाई प्रथम चरण (लिखित परीक्षा) र द्वितीय चरण (अन्तर्वार्ता) गरी दुई चरणमा विभाजन गरिएको छ ।
- लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुनेछ ।
- प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
- परीक्षामा सोधिने प्रश्नसंख्या, अङ्क र अङ्कभार यथासम्भव सम्बन्धित पत्र/विषयमा तोकिए अनुसार हुनेछ ।
- विषयगत प्रश्नमा प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नहरूको उत्तर सोही खण्डका उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
- यस पाठ्यक्रममा जे सुकै लेखिएको भएतापनि पाठ्यक्रममा परेका ऐन, नियमहरू, परीक्षाको मिति भन्दा ३ महिना अगाडी (संशोधन भएका वा संशोधित भई हटाईएका वा थप गरी संशोधित भई कायम रहेका) लाई यस पाठ्यक्रममा परेको सम्झनु पर्दछ ।
- प्रथम चरणको परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
- पाठ्यक्रम लागू मिति :- २०७८/०२/२२

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Paper I: General Subject

Section (A): 40% Marks (4×5 marks, 2×10 marks)

1. Administration and Management

- 1.1. Public Administration: concept, scope, functions and challenges
- 1.2. Management: concept, scope, functions, principles, and its practices
- 1.3. Contemporary management issues and challenges
- 1.4. Hospital Management : concept, scope, function, principle and its practices
- 1.5. Human resource management: concept, functions and different aspects
- 1.6. Basic managerial skills: coordination and public relation, communication and counselling, problem solving and decision making, leadership, team building, rapport building, planning, organizing, monitoring and evaluation
- 1.7. Emerging management concepts and their application in the Nepalese Public Management: Time management, Resource management (human, financial and physical), Technology management, Performance management, Stress management, Conflict management, Risk management and Participative management
- 1.8. Planning: concept, principles, nature, types, instrument and steps
- 1.9. Motivation, appreciative inquiry and social responsibility
- 1.10. Positive attitude and self-development
- 1.11. Group dynamic and organizational behavior
- 1.12. Grievance redressal and settlement
- 1.13. Financial Management: Concept, Approaches, Budget Formulation and Implementation, Auditing and topics related to Fiscal administration

Section (B): 40% Marks (4×5 marks, 2×10 marks)

2. General Health Issues

- 2.1. Present Constitution of Nepal (health and welfare issues)
- 2.2. National Health Policy
- 2.3. Health sector in current periodical plan
- 2.4. Health Service Act, 2053 and Health Service Regulation, 2055
- 2.5. Professional council related acts and regulations
- 2.6. Act Regulating Narcotics
- 2.7. NMC and National Health Agencies
- 2.8. Indigenous and traditional faith healing and health practices
- 2.9. International health agencies: Role and responsibilities of WHO, UNICEF, UNFPA and interagency relationships
- 2.10. Health and Human Right including Women's Right, Children's Right, Professional's Right, Client Right and Informed consent
- 2.11. Gender issues and health
- 2.12. Urbanization and health impacts
- 2.13. National health training system
- 2.14. Supervision, types and its usage in Health Sector

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- 2.15. Monitoring and Evaluation System in Health
- 2.16. Health Management Information System
- 2.17. Health economics - basic terms, health insurance and financing in Health Care
- 2.18. Federal governance and decentralization in health
- 2.19. Evidence Based Medicine / Critical Appraisal of Scientific Literature
- 2.20. Principles of Research Methodology and Scientific paper writing/publication
- 2.21. Professional and medical ethics
- 2.22. Informed Consent and Medico legal Issues
- 2.23. Medical Audit and Quality Assurance
- 2.24. Information technology and Tele medicine
- 2.25. Drug act and regulation
- 2.26. Rational use of drugs, national drug policy and importance of essential drug list
- 2.27. Ethics, Integrity and Accountability of health professionals
- 2.28. Private sector health institution its regulation and management
- 2.29. Health institution development and management
- 2.30. Patient safety & Breaking Bad News
- 2.31. Cancer Registry: Hospital and Community Based Cancer Registry
- 2.32. Preventive Oncology
 - 2.32.1. Epidemiology
 - 2.32.2. Primary prevention (Cancer Awareness, Cancer Education, Vaccination)
 - 2.32.3. Secondary Prevention (Screening, Screening Methods)
- 2.33. Multidisciplinary Approach in Cancer Management

Section (C): 20% Marks (2×5 marks, 1×10 marks)

3. Organizational Knowledge

- 3.1. B.P.Koirala Memorial Cancer Hospital : History, organizational structure, functions, roles, services, possibilities, problems and challenges
- 3.2. Service provided by B.P.Koirala Memorial Cancer Hospital-service types, quality, technology, citizen engagement in service design
- 3.3. Relations between Government and other national and international related organizations
- 3.4. Health manpower recruitment and development in B.P.Koirala Memorial Cancer Hospital
- 3.5. B.P.Koirala Memorial Cancer Hospital related act and regulations

Paper II : Technical Subject
Section (A) – 50 % Marks

1. Basic Hematology

- 1.1 Morphology, physiology and biochemistry of blood, marrow, lymphatic tissue and spleen
- 1.2 Basic morphology and basic concepts of hematopoiesis
- 1.3 Normal hemostatic mechanism, pathophysiology of blood coagulation and thrombosis
- 1.4 Development of Immune system
- 1.5 Cell Cycle and Carcinogenesis
- 1.6 Principles of chemotherapy
- 1.7 Effects of other systemic disorders on the blood, blood-forming organs and lymphatic tissue
- 1.8 Genetic aspects of hematology
- 1.9 Relevant drugs, their mechanisms of actions, pharmacokinetics and clinical indications and limitations, including effects, toxicity, and interactions
- 1.10 Infections and hematological problems
- 1.11 Cluster of differentiation antigens (CD markers) relevant to hematological diseases, their distribution, detection and use in diagnosis
- 1.12 Use of radioisotopes in hematology

2. Clinical Hematology and Hematopathology

2.1 Erythrocytes:

- 2.1.1 Production, composition, destruction of erythrocytes
- 2.1.2 Clinical manifestations and classification of erythrocyte disorders
- 2.1.3 Definition and classification of anemia
- 2.1.4 Iron metabolism. Vitamin B12 and folic acid metabolism
- 2.1.5 Causes, clinical features laboratory diagnosis of iron deficiency anemia, megaloblastic anemia, anemia resulting from other nutritional deficiencies, anemia of chronic diseases
- 2.1.6 Etiopathogenesis, clinical features, diagnosis and treatment of congenital dyserythropoetic anemia
- 2.1.7 Etiopathogenesis, clinical features, diagnosis and treatment of congenital paroxysmal nocturnal hemoglobinuria
- 2.1.8 Acquired and inherited aplastic anemia and pure red cell apalsia: etiopathogenesis, clinical and laboratory findings, diagnosis, management
- 2.1.9 Anemia in systemic disorders, endocrine disease and associated with marrow infiltration
- 2.1.10 Red blood cell membrane disorders: hereditary spherocytosis, elliptocytosis and related disorders
- 2.1.11 Disorders of red cell resulting from enzyme abnormalities
- 2.1.12 Thalassemia and hemoglobinopathies: epidemiology, etiopathogenesis, classification, genetic mechanism, clinical and hematological features, complications, laboratory diagnosis, antenatal diagnosis, management
- 2.1.13 Sickle cell anemia and related abnormalities; epidemiology, etiopathogenesis, classification, genetic mechanism, clinical and hematological features, complications, laboratory diagnosis, management

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- 2.1.14 Classification, etiology, clinical and laboratory diagnosis of hemolytic anemias and Hemolytic anemias due to physical, chemical, microbial causes and immune mechanisms
- 2.1.15 Red cell disorders in the newborn
- 2.1.16 Hemolytic disease of newborn: Basis, diagnosis, clinical and laboratory features
- 2.1.17 Porphyrias: types, etiopathogenesis, diagnosis, clinical and laboratory features
- 2.1.18 Hereditary and acquired sideroblastic anemias; etiopathogenesis, diagnosis, clinical and laboratory features, management
- 2.1.19 Primary and secondary polycythemia: etiopathogenesis, clinical and hematological features, complications, laboratory diagnosis, management
- 2.1.20 Red cell disorders in pregnancy

2.2 Leucocytes:

- 2.2.1 Morphology, composition, production, function, distribution and fate of different WBCs
- 2.2.2 Classification, clinical manifestations and diagnosis of qualitative and quantitative disorders of neutrophils
- 2.2.3 Production, function, morphology and disorders of eosinophils, mast cells and basophils,
- 2.2.4 Classification, clinical manifestations and diagnosis of monocytes and macrophages, inflammatory and malignant histiocytosis, etiopathogenesis, clinical and laboratory features, diagnosis
- 2.2.5 Lipid storage disorders; Types, genetic basis, etiopathogenesis, clinical and laboratory features, complications, management
- 2.2.6 Hematological manifestation of AIDS
- 2.2.7 Production, morphology and functions of lymphocytes. Lymphocytosis and lymphocytopenia.
- 2.2.8 Etiopathogenesis, classification, clinical features, diagnosis, treatment, genetic and molecular evaluation, prognostic markers and complications of acute and chronic myeloid and lymphoid leukemias
- 2.2.9 Leucocyte cytochemistry
- 2.2.10 Etiopathogenesis, classification, clinical features, diagnosis, treatment, genetic and molecular evaluation, prognostic markers and complications of various Myeloproliferative disorders and Molecular diagnosis, Treatment of CML, Monitoring response to therapy in CML
- 2.2.11 Hodgkin and Non Hodgkin Lymphomas: pathophysiology, classification, clinical and laboratory findings, diagnosis, management, complications, prognosis
- 2.2.12 Plasma cell disorders : Etiopathogenesis, classification, clinical features, diagnosis, treatment
- 2.2.13 Amyloidosis, heavy chain diseases, macroglobulinemia

2.3 Hemostasis and Thrombosis :

- 2.3.1 Overview of megakaryopoiesis
- 2.3.2 Biochemistry, morphology and function of platelets
- 2.3.3 Various coagulation factors, their molecular biology and biochemistry

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- 2.3.4 Pathophysiology of blood coagulation and thrombosis, pathways of hemostasis
- 2.3.5 Classification, clinical manifestation, evaluation, treatment of disorders of hemostats
- 2.3.6 Etiopathogenesis, clinical and laboratory features, treatment and prognosis of Hereditary and acquired qualitative disorders of platelets, effect of drugs on platelet function.
- 2.3.7 Hematological and systemic disorders associated with abnormal platelet function
- 2.3.8 Thrombocytopenia, their causes, clinical and laboratory features, diagnosis and treatment, pathophysiology of ITP, neonatal thrombocytopenia, spurious thrombocytopenia
- 2.3.9 Thrombocytosis, causes, clinical and laboratory features, reactive thrombocytosis
- 2.3.10 The vascular purpuras: etiopathogenesis, clinical and laboratory features, diagnostic approach
- 2.3.11 Hemophilia A & B: etiopathogenesis, genetics, clinical and laboratory features, complications, management, course and prognosis
- 2.3.12 Etiopathogenesis, clinical and laboratory features, complications, management of inherited deficiency of other coagulation factors, combined deficiency of factors
- 2.3.13 Hemostatic dysfunction related to liver disease
- 2.3.14 Von willebrand disease; : etiopathogenesis, genetics, types, clinical and laboratory features, complications, management, course and prognosis
- 2.3.15 Disseminated intravascular coagulation: Etiopathogenesis, clinical and laboratory features, complications, management
- 2.3.16 Hereditary Thrombophilia: Etiopathogenesis, major types, clinical and laboratory features, management
- 2.3.17 The antiphospholipid antibody syndrome: Etiopathogenesis, clinical and laboratory features, complications, management
- 2.3.18 Venous thrombosis: Causes, approach to diagnosis, management
- 2.3.19 Fibrinolysis and thrombolysis: concept of fibrinolytic system, fibrinolytic agents, inhibitors, thrombolytic therapy, antifibrinolytic agents and their clinical use
- 2.3.20 Pediatric issues in thrombosis
- 2.3.21 Thrombosis and pregnancy
- 2.3.22 Thrombotic thrombocytopenic purpura and Heparin induced thrombocytopenia: Etiopathogenesis, clinical and laboratory features, complications, management
- 2.3.23 Anticoagulant monitoring

3. Laboratory Hematology

- 3.1 Proper use and care of common instruments such as light microscope, centrifuge, water baths, freezers, weighing balance, etc. used in hematology laboratory
- 3.2 Blood collection, different methods, sample collection, anticoagulants, containers, effects of delay in processing and storage
- 3.3 Preparation of blood films and CSF, staining of peripheral/blood films and CSF cytospin slides with Ramanowsky and other dyes
- 3.4 Determination of peripheral blood counts (Hemoglobin, Hematocrit, RBC, Total WBC and platelets) manually and calculation of red cell indices

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- 3.5 Use of automated blood cell counters including principles and practice
- 3.6 Interpretation of peripheral blood counts and abnormal flags
- 3.7 Performance of WBC differential counts; subjective assessment of platelet counts and diagnostic interpretation of abnormal counts
- 3.8 Review of normal and abnormal blood films with emphasis on morphology of red cells, white cells and platelets
- 3.9 Supravital staining of reticulocytes, counting of reticulocytes
- 3.10 Limitations and uses of automated WBC differentials
- 3.11 Interpretation of RBC indices to characterize anemias
- 3.12 Preparation and staining of thick and thin blood films for Hemoparasites
- 3.13 Identification of different hemoparasites in blood and marrow
- 3.14 Measurement and significance of ESR and plasma viscosity
- 3.15 Indication, instruments, procedure of bone marrow aspiration; trephine needle biopsy, splenic aspiration
- 3.16 Preparation of smear of bone marrow aspirates and biopsy (touch) imprints. Staining and diagnostic evaluation of bone marrow aspirates in adult as well as pediatric patients
- 3.17 Interpretation of iron profile, indications and interpretation of ferrokinetic studies
- 3.18 Principle and procedure of serum vitamin B12, serum folate and red cell folate testing
- 3.19 Principle, procedure and interpretation of sickling test, HbS solubility test, osmotic fragility test, HAMS test, G6PD deficiency
- 3.20 Screening for unstable hemoglobin, supravital staining of Hb H inclusions
- 3.21 Principles, procedure and practice of separation and identification of normal and abnormal hemoglobins by electrophoresis and chromatography, interpretation of electrophoresis and HPLC data
- 3.22 Quantitation of HbF by alkali denaturation and cellular distribution of HbF
- 3.23 by Kleihauer acid elution technique,
- 3.24 Heinz body preparation and identification screening for G6PD deficiency and quantitative estimation of G6PD and other red cell enzymes
- 3.25 Direct and indirect Coomb's test, warm and cold autoantibody titres
- 3.26 Miscellaneous biochemical test on red cell, plasma and urine for diagnosis of hemolytic anemias: plasma bilirubin and Haptoglobin, methaemalbumin, methaemoglobin and sulphaehemoglobin; urine for Hb, red cells, hemosiderin, urobilinogen and bilirubin
- 3.27 Screening for cryoglobins, principles of immunoglobulin estimation and immune electrophoresis,
- 3.28 Different Enzyme cytochemical stains, their principle, uses and interpretation: Myeloperoxidase, specific and non-specific esterases, acid phosphatase. Periodic acid Schiff and iron staining, Leucocyte alkaline phosphatase
- 3.29 Interpretation of quantitative immunoglobulin levels, serum protein electrophoretic strips and immunoelectrophoresis patterns
- 3.30 Principle, procedure and interpretation of routine tests : PT, PTT, thrombin time, reptilase time, bleeding time, platelet count
- 3.31 Workup of abnormal PTT and PT results
- 3.32 Understanding of platelet kinetics, study of platelet morphology
- 3.33 Principles, practice and interpretation of platelet aggregometry tests
- 3.34 Study of Platelet associated immunoglobulin (PAIgG) and circulating antiplatelet antibodies

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- 3.35 Laboratory approach to inherited and acquired coagulation factor deficiencies
- 3.36 Correction studies with normal plasma, adsorbed plasma, aged serum and factor deficiency plasmas.
- 3.37 Principle, procedure and interpretation of tests for FDP and D-Dimers
- 3.38 Assays of clotting factors particularly factors VIII and IX
- 3.39 Urea solubility test for factor XIII, Euglobulin lysis time and other relevant tests of plasma fibrinolytic activity, laboratory work up of DIC
- 3.40 Thrombophilia work up: Assays of plasma AT III, protein C, protein S, Factor V Leiden
- 3.41 Screening for lupus anticoagulant and activated protein C resistance ; principles of screening tests and interpretation of results
- 3.42 Anticoagulant monitoring in laboratory

4. Immunophenotyping

- 4.1 Principle and practice of flow cytometry
- 4.2 Interpretation and clinical significance of flow cytometry data in leukemias, lymphomas and other hematological disorders

Section (B) – 50 % Marks

5. Histopathology

- 5.1 Tissue processing techniques
- 5.2 Different stains used in bone marrow trephine biopsies and lymph node biopsies
- 5.3 Interpretation of bone marrow trephine biopsies and lymph node biopsies
- 5.4 Use of immunohistochemistry in bone marrow and lymph nodes for diagnosis of leukemias and lymphomas and other disorders

6. Cytogenetics, Molecular Pathology and Immunopathology

- 6.1 Methods, procedures, and interpretation of standard karyotyping analysis
- 6.2 Principle and use of fluorescent in situ hybridization and more specialized techniques
- 6.3 Cytogenetics of myeloid, lymphoid and plasma cell disorders, their use in prognosis and therapy monitoring
- 6.4 Basic concepts in molecular biology and pathology
- 6.5 Basic gene structure and function
- 6.6 Principle, brief procedure and interpretation of Molecular pathology tests pertinent to hematopathology: Southern blot, PCR and its different types, restriction fragment length polymorphism, Real-time PCR
- 6.7 DNA & RNA extraction techniques
- 6.8 Separation of lymphocytes using density gradient and centrifugation
- 6.9 HLA typing, microlymphocytotoxicity test and its application in HLA typing, cross-matching and antibody screening
- 6.10 Recent advances and Other emerging techniques and technologies in hematopathology

7. Transfusion Medicine

- 7.1 History of Transfusion Medicine
- 7.2 indications for blood and component transfusion

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- 7.3 Donor registration, donor selection, blood collection from donors, adverse donor reaction, pre donation counselling, Bleeding of the donor, post donation care, post donation counseling
- 7.4 Blood collection room equipment, their principles, and use, emergency medicines,
- 7.5 Details of Anticoagulants used to store blood, their mechanism of action and composition, preservation of donated blood, types of blood bag, mechanism of action and composition of blood preservation solution & additive solutions, changes occurring in the stored blood
- 7.6 Blood components – Indications, preparation of blood components, Selection of blood bags for component preparation, preparation of red Cell concentrate, Fresh Frozen plasma, platelet concentrate, cryoprecipitate, washed red cells, Frozen red cells . Component Testing, Labeling, Transportation and storage of blood components, Metabolic changes in blood components during storage
- 7.7 Blood groups and genetics, Principles of immune system central to transfusion medicine, Immunology of red blood cells, Different major and minor blood groups and their importance
- 7.8 Red cell allo- and autoantibody formation and function
- 7.9 Platelets and leucocytes antigen and antibodies, their importance
- 7.10 Blood grouping and Compatibility testing – Major, minor, Coomb's cross match, Factors influencing the results of blood grouping
- 7.11 Coomb's test – application – DCT, ICT, Rh antibody titre
- 7.12 Gel testing for antibody screening and identification
- 7.13 Hazards of blood transfusion, Strategies to prevent transfusion reactions
- 7.14 Pathophysiology, clinical signs and symptoms, and Laboratory Investigation for hemolytic transfusion reactions
- 7.15 Investigation of ABO, Rh and other immunohaemolytic diseases of the newborn
- 7.16 Practical aspects in the selection of blood for neonatal exchange transfusion, Hemolytic disease of the new born and exchange transfusion
- 7.17 Management of Blood Bank Issue Counter, Criteria for acceptance of requisition form, inspection of blood component prior to issue
- 7.18 Screening of blood units for TTI, ELISA, rapid and other tests for diagnosis of transfusion transmitted infections
- 7.19 Nucleic acid testing
- 7.20 Hemapheresis- definition, types of pheresis, machines and techniques
- 7.21 Basics of Tissue banking & Cord blood banking
- 7.22 Disposal of wastes and biologically hazardous substance in the blood bank
- 7.23 Medico legal aspects of blood transfusion
- 7.24 Quality control of blood grouping reagents, QC of anti-human globulin reagent, bovine albumin, Normal saline
- 7.25 Quality control in blood banking, Quality control of bags and different blood bank components, sterility test on component
- 7.26 Calibration, validation and maintenance of blood bank equipment, QC of blood bank techniques, external and internal quality assessment
- 7.27 Hemovigilance in blood banking
- 7.28 Automation in Blood Banking

8. Bone marrow Transplant:

- 8.1 Donor selection, HLA typing and, screening of Donor

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तह, रजिष्ट्रार पदको खुला र आन्तरिक प्रतियोगितात्मक परीक्षाको पाठ्यक्रम

- 8.2 Conditioning regimens, principles of their use in different disorders and complications
- 8.3 Harvesting and manipulation of the bone marrow. Bone marrow collection, red cell or plasma reduction, peripheral blood stem cell, mobilization and collection, cryopreservation, Transfusion of marrow. Purging of marrow – T cell depletion
- 8.4 Stem cell processing and storage for transplantation
- 8.5 Classes of MHC, different methods of HLA typing, Procedure of HLA matching for bone marrow transplant
- 8.6 Procedure of chimerism testing/engraftment analysis after bone marrow transplant
- 8.7 Transplantation immunology, Histocompatibility, graft versus host disease – diagnosis and management, Immune reconstitution following transplantation
- 8.8 Management of post transplant patient

9. Medical oncology, radiotherapy and Nuclear medicine

- 9.1 Principles of management of different solid tumors, other hematological malignancies such as NHL, Hodgkins disease, multiple myeloma
- 9.2 Basics of high dose chemotherapy and newer modalities of treatment, principles of radiotherapy, the use of various radioisotopes
- 9.3 Radiotherapy in management of NHL, Hodgkins disease, multiple myeloma, CNS prophylaxis in acute leukemias
- 9.4 Basic knowledge of use of nuclear medicine in diagnosis of both oncologic and non-oncological hematological disorders

10. Laboratory Management

- 10.1 Fundamental of Total Quality management
- 10.2 Statistical process in quality control
- 10.3 Element of quality assurance program
- 10.4 Concept of Evidence based medical practice.
- 10.5 Concept of critical values and alert values in laboratory practice
- 10.6 Laboratory information system
- 10.7 Concept of reference laboratory
- 10.8 Implementation of reference system in laboratory medicine
- 10.9 Standard operating procedure and their preparation
- 10.10 Errors and identification of the source of error in hematology laboratory
- 10.11 Internal and External quality control and proficiency testing
- 10.12 Preparation of quality policy manual
- 10.13 Laboratory Accreditation, Key component of accreditation, ISO 15189 and others laboratory related accrediting bodies
- 10.14 Quality control in procedure, equipments, NEQAS, EQAS
- 10.15 Ethics in medicine
- 10.16 Health and Safety measures (Physical/Chemical/Biological/Radiation)
- 10.17 Waste disposal
- 10.18 Management of under resourced laboratory

11. Haematological malignancies

- 11.1 Myelodysplastic Syndrome
- 11.2 Acute and chronic leukemias
- 11.3 Hodgkin,s and Non-Hodgkins Lymphomas
- 11.4 Plasma cell Dyscrasias
- 11.5 Myeloproliferative disorders