1. **Etiology and epidemiology of malignant diseases**:
   - Genetic Predisposition to Cancer
   - Chemical Carcinogenesis
   - Hormones and the Etiology of Cancer
   - Ionizing Radiation
   - Ultraviolet Radiation Carcinogenesis
   - Physical Carcinogens
   - Trauma and Inflammation
   - Tumor Viruses
   - Herpes viruses
   - Papilloma viruses and Cervical Neoplasia.
   - Hepatitis Viruses
   - Parasites
   - Environmental factors in carcinogenesis.

2. **Prognosis and natural history of malignant diseases**:
   - Mechanisms and patterns in local, regional and distant dissemination of malignant diseases.
   - Differences in natural history between hereditary and sporadic forms of cancer.
   - Diseases predisposing to malignancy e.g. Inflammatory bowel disease or primary sclerosing cholangitis.
   - Prognostic and predictive factors.
   - Genetics of hereditary malignant diseases.

3. **Cancer biology**:
   - Cell kinetics, proliferation, apoptosis and the balance between cell death and cell proliferation.
   - Angiogenesis and lymphangiogenesis.
   - Genome maintenance mechanisms to prevent cancer.
   - Intercellular and intermolecular adhesion mechanisms and signaling pathways.
   - Potential effects of surgery and surgery-related events on cancer biology. (e.g. Angiogenesis)

4. **Tumor immunology**:
   - Cellular and humoral components of the immune system.
   - Regulatory mechanisms of the immune system
   - Tumor antigenicity
   - Immune-mediated antitumour cytotoxicity
   - Effect of cytokines on the tumor.
   - Effects of the tumor on anti-tumor immune mechanisms.
   - Potential adverse effects of surgery and surgery-related events (like blood transfusions) on the immunological responses

5. **Cancer Screening and Early Detection**
6. Basic principles of cancer treatment:
- Surgery
- Radiotherapy
- Chemotherapy
- Endocrine therapy
- Immunotherapy
- Evaluation of the choices of treatments
- Adverse effects with these treatments
- Interactions of these treatment modalities with those of surgery

7. Cancer Prevention:
- Prevention of tobacco-related cancers
- Nutrition in the etiology and prevention of cancer
- Chemo-prevention of cancer
- Cytokinetics
- Drug resistance and its clinical circumvention
- Principles of dose, schedule, and combination
- Chemotherapy
- Regional Chemotherapy
- Animal models in developmental therapeutics
- In vitro and in vivo predictive tests
- Pharmacology
- Toxicology by organ system

8. Chemotherapeutic Agents:
- Folate Antagonists
- Pyrimidine and Purine Antimetabolites
- Alkylating Agents and Platinum Antitumor Compounds
- Anthracyclines and DNA Intercalators
- Epipodophyllotoxins / DNA Topoisomerases
- Microtubule – targeting anticancer drugs derived from plants and microbes
- Vinca Alkaloids, Taxanes, and Epothilones, Asparaginase
- Recent Advances/concepts

9. Principles of Endocrine Therapy:
- Steroid Hormone Binding and Hormone Receptors
- Hypothalamic and Other Peptide Hormones
- Corticosteroids
- Estrogens and Anti-estrogens
- Clinical use of Aromatase Inhibitors in Breast Carcinoma
- Progestins
- Androgen Deprivation Strategies in the treatment of Advanced Prostate Cancer

10. Principles of Cancer Pathology

11. Principles of Imaging:
- Imaging neoplasms of the head and neck and central nervous system
- Imaging neoplasms of the thorax
- Imaging neoplasms of the abdomen and pelvis
- Cross-sectional imaging of musculoskeletal neoplasms
- Imaging the breast
• Ultrasound in cancer medicine
• Radionuclide imaging in cancer medicine
• Perspectives in imaging
• Interventional radiology for the cancer patient

12. Principles of Surgical Oncology:
• Vascular access in cancer patients

13. Principles of Radiation Oncology:
• Physical and biologic basis of Radiation Oncology
• Principles of Hyperthermia
• Photodynamic Therapy for cancer

14. Principles of Medical Oncology

15. Principles of Biotherapeutics:
• Immunostimulants
• Active specific immunotherapy with vaccines
• Interferons
• Cytokines: biology and applications in cancer medicine
• Hematopoietic Growth Factors.
• Monoclonal Serotherapy
• Cancer Gene Therapy
• Hepatitis Viruses
• Parasites

16. Neoplasms of Head & Neck

17. Neoplasms of the Thorax:
• Cancer of the Lung
• Malignant Mesothelioma
• Thymomas and Thymic Tumors

18. Neoplasms of the Female Reproductive Organs:
• Neoplasms of the vulva and vagina
• Neoplasms of the cervix
• Endometrial cancer
• Neoplasms of the fallopian tube
• Ovarian cancer
• Gestational Trophoblastic Disease

19. Neoplasms of the Breast

20. Neoplasms of the Skin

21. Malignant Melanoma

22. Neoplasms of the Bone and soft Tissue:
• Bone Tumors & Sarcoma of non-osseous tissues

23. Neoplasms of the Hematopoietic System:
• Myelodysplastic Syndrome
• Acute Myeloid Leukemia in adults
• Chronic Myeloid Leukemia
- Acute Lymphocytic Leukemia
- Chronic Lymphocytic Leukemia
- Tumors of the heart and great vessels
- Primary germ cell tumors of the Thorax
- Metastatic tumors in the Thorax
- Hairy – Cell Leukemia
- Hodgkin’s Disease
- Non – Hodgkin’s Lymphomas
- Mycosis Fungoides and the Sezary Syndrome
- Plasma cell tumors
- Mast cell Leukemia and other mast cell neoplasms
- Polycythemia vera and essential thrombocythemia

24. Neoplasms of the Alimentary Canal :
   - Neoplasms of the Esophagus
   - Neoplasms of the Stomach
   - Primary Neoplasms of the Liver
   - Treatment of Liver Metastases
   - The Gallbladder
   - Diagnosis and Management of Biliary Tract Cancer
   - Neoplasms of the Ampulla of Vater
   - Neoplasms of the Exocrine Pancreas
   - Neoplasms of the small intestine, vermiform appendix, and peritoneum, colon and rectum & anal canal.

25. Neoplasms of the Genitourinary Tract :
   - Renal Cell Carcinoma
   - Neoplasms of the Renal Pelvis and Ureter
   - Bladder Cancer
   - Neoplasms of the Prostate
   - Neoplasms of the Penis
   - Neoplasms of the Testis
   - Neoplasms in Acquired Immuno deficiency Syndrome

26. Neoplasms of Unknown Primary Site

27. Neoplasms in Children :
   - Principles and practice of pediatric oncology
   - Incidence, origins, epidemiology
   - Principles of pediatric radiation oncology
   - Late effects of treatment of cancer in children and adolescents
   - Childhood Acute Lymphoblastic Leukemia
   - Pediatric Acute Myeloid Leukemia
   - Hodgkin’s disease in children and adolescents
   - Non – Hodgkin’s Lymphoma in children
   - Langerhan’s Cell Histiocytosis
   - Hepatic tumors
   - Renal tumors of childhood
   - Germ cell tumors
   - Neuroblastoma
   - Soft tissue sarcoma of childhood
28. Complications of Cancer and its Treatment:
- Management of cancer pain
- Anorexia and Cachexia
- Antiemetic Therapy
- Neurologic complications
- Dermatologic complications of cancer chemotherapy
- Skeletal complications
- Hematologic complications of cancer
- Blood bank support
- Coagulopathic complications of cancer
- Urologic complications
- Cardiac complications
- Respiratory complications
- Liver function and hepatotoxicity in cancer
- Gastrointestinal complications
- Oral complications
- Gonadal complications
- Endocrine complications
- Secondary cancers: incidence, risk factors, and management

29. Infections in Patients with Cancer

30. Oncologic Emergencies

31. Neurooncology

32. Neoplasms of Endocrine system

33. Other areas in which knowledge is required:
- Cancer registry & data acquisition
- Biostatistics, Research Methodology and Clinical Epidemiology
- Ethics
- Medico legal aspects relevant to the discipline
- Health Policy issues as may be applicable to the discipline
- Palliative care, Pain management
- Supportive care, Quality of life issues
- Complementary, alternative and Integrative Therapies in Cancer care with Rehabilitation
- Geriatric Oncology
- Cancer Survivorship
- Nutrition support in cancer patients
- Communication with cancer patients
- End of life care
- Basic principles of cancer Hospital and operation theatre complex planning, designing and administration
- Teaching methodology, tools and technology for telemedicine
- Public education, advocacy principles.

Pattern of Question Papers:
1. Objective Type Paper
2. Maximum Marks: 180
3. Number of Questions: 180
4. Duration of Paper: Three Hours
5. All Questions carry equal marks
6. There will be Negative Marking