April-2001

[KD 017] **Sub. Code : 1301**

D.M. DEGREE EXAMINATION.

(Higher Specialities)

Branch VII — Medical Oncology

(Revised Regulations)

Paper I — BASIC SCIENCES

(RADIATION PHYSICS, TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Time : Three hours Maximum : 100 marks

Answer ALL questions

1. Discuss the relationship between viruses and cancer. (25)

2. Write in detail immunophenotyping of acute leukemias. (25)

3. Write briefly on : (5 × 10 = 50)

   (a) Apoptosis.

   (b) Cell cycle.

   (c) Cellular Immunodeficiency

   (d) Radiosensitiser.

   (e) Intravesical chemotherapy.

November-2001

[KE 017] **Sub. Code : 1301**

D.M. DEGREE EXAMINATION

(Higher Specialities)

(Revised Regulations)

Branch VII — Medical Oncology

Paper I — BASIC SCIENCES, (RADIATION PHYSICS, TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Time : Three hours Maximum 100 marks

Answer ALL questions.

1. Discuss role of dendritic cell based immunotherapy in the treatment of cancer. (25)

2. Write briefly on molecular biology of epithelial ovarian cancer. How this knowledge can be utilized to overcome the drug resistance? (25)

3. Write short notes on : (5 × 10 = 50)

(a) Paraneoplastic cerebellar ataxia

(b) Multidrug resistance modulation

(c) Positron Emission Tomography in non Hodgkins lymphoma

(d) Indications for radiation therapy in Wilms Tumour

(e) CNS Prophylaxis in small cell lung cancer.

March-2002

[KG 017] **Sub. Code : 1301**

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Medical Oncology

Paper I — BASIC SCIENCES

(RADIATION PHYSICS, TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Discuss role of genetic prognostic markers in the management of breast cancer. (25)

2. Describe briefly molecular biology of colon cancer and role of adjuvant chemotherapy in treatment of colorectal cancer. (25)

3. Short notes on : (5 × 10 = 50)

(a) Antifungal prophylaxis in patients on cancer chemotherapy

(b) Oxaloplatin

(c) Radiofrequency ablation of malignant liver tumours

(d) Molecular methods for HLA matching

(e) Skeletal targeted radiotherapy.

[KK 017] **Sub. Code : 1301**

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Medical Oncology

Paper I — BASIC SCIENCES

(RADIATION PHYSICS, TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Time : Three hours — Maximum : 100 marks

Theory : Two hours and forty minutes — Theory : 80 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

Answer ALL questions.

A. Essay : $(2 \times 15 = 30)$

(1) Describe briefly the mechanism of osteolytic bone lesions in multiple myeloma. (15)

(2) Discuss briefly the pathology and role of tumour markers in the management of Germ cell tumours of ovary. (15)

B. Short notes : $(10 \times 5 = 50)$

(1) Conformal Radiation Therapy

(2) Hepatotoxic chemotherapy drugs

(3) Hereditary cancer syndromes with reference to ovary

(4) Biphenotypic leukemia

(5) Liposomal Drug delivery

(6) Telomerase

(7) Radiofrequency ablation of malignant liver tumours

(8) Cyclosporin : Mechanism and drug interactions

(9) Infections as etiological factor for childhood acute lymphoblastic leukemia

(10) Paraneoplastic syndromes involving nervous system.

[KL 017] **Sub. Code : 1301**

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Medical Oncology

Paper I — BASIC SCIENCES

(RADIATION PHYSICS, TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

I. Essay : (2 × 15 = 30)

(1) Discuss the role of cytogenetics in the management of acute leukemias.

(2) Discuss role of monoclonal antibodies in the treatment of solid tumours.

II. Short notes on : (10 × 5 = 50)

(a) Stereotactic Radiosurgery.

(b) ATRA syndrome.

(c) Molecular biology of colon cancer.

(d) Immunohistochemistry in the diagnosis of unknown primary.

(e) Role of radiation in the treatment of Hodgkin's disease.

(f) Diagnosis of fungal infections.

(g) Letrozole.

(h) Etiology of impaired renal functions in bone marrow transplant recipients.

(i) Virus in the etiology of cancer.

(j) Response criteria for evaluation of Chemotherapy Treatment.

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February-2005

[KM 017] **Sub. Code : 1301**

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Medical Oncology

Paper I — BASIC SCIENCES

(RADIATION PHYSICS, TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

I. Essay : (2 × 15 = 30)

(1) Discuss the various etiological factors in causation of cancer, with special emphasis on preventable causes.

(2) Discuss the neoplastic angiogenesis, its role in tumour invasion, metastases and highlight the antiangiogenic strategies.

II. Write Short notes on : (10 × 5 = 50)

(a) Hereditary cancers.

(b) Graft versus Host disease.

(c) Chemotherapy in pregnancy.

(d) Concurrent chemo-radiotherapy in cancer of cervix.

(e) Cell-Cycle.

(f) Docetaxel.

(g) Survival curves.

(h) Long Term venous Access.

(i) Nutrional supplements in cancer.

(j) Breaking Bad News.

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[KO 017] **Sub. Code : 1301**

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Medical Oncology

Paper I — BASIC SCIENCES

(RADIATION PHYSICS, TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

I. Essay : (2 × 15 = 30)

(1) Discuss the role of flow cytometry in the management of Acute Leukemias.

(2) Discuss the role of stem cells in the management of haematologic malignancies.

II. Short notes : (10 × 5 = 50)

(a) Tumour Lysis Syndrome.

(b) Molecular biology of follicular lymphoma.

(c) Tumour markers in the diagnosis of unknown primary.

(d) Role of radiation in palliative care.

(e) Anaerobic infections in cancer patients.

(f) Bicalutamide.

(g) Chemically induced leukemias.

(h) Evaluation of minimal residual disease in acute leukemias.

(i) Anti fungal therapy.

(j) Myeloma response criteria.

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[KP 017] **Sub. Code : 1301**

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Medical Oncology

Paper I — BASIC SCIENCES

(RADIATION PHYSICS, TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

I. Essay :

(1) Discuss the molecular mechanisms of action of retinoids and critically evaluate their role in the prevention and treatment of cancer. (20)

(2) What are antioxidants? Critically evaluate their role in the causation and prevention of cancer. (15)

(3) Discuss the diagnosis and staging classification of lung cancer. (15)

II. Short notes : (6 × 5 = 30)

(a) Role of human papilloma virus in cervical cancer.

(b) Monoclonal antibody therapy of acute myeloid leukaemia.

(c) Human immunodeficiency associated lymphomas.

(d) Hyper fractionated radiotherapy.

(e) Linear energy transfer and relative biologic effectiveness.

(f) Hyper calcaemia of malignancy.

[KQ 017] **Sub. Code : 1301**

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Medical Oncology

Paper I — BASIC SCIENCES

(RADIATION PHYSICS, TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

I. Essay :

1. Discuss the molecular mechanisms of apoptosis. Evaluate the role of anti apoptotic agents in the treatment of cancer. (20)

2. What are Receptor Tyrosine Kinases? What is the role of Receptor Tyrosine Kinase inhibitors in treatment of cancer? (15)

3. Discuss the diagnosis and staging classification of colon cancer. (15)

II. Short notes : (6 × 5 = 30)

1. Role of Ebstein Barr virus in Burkitt's lymphoma.

2. Post transplantation lymphomas.

3. Monoclonal Antibody therapy in chronic lymphocytic leukemia.

4. Intensity modulated Radiotherapy.

5. Oxygen enhancement ratio.

6. S.I.A.D.H.

[KR 017] **Sub. Code : 1301**

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Medical Oncology

Paper I — BASIC SCIENCES

(RADIATION PHYSICS, TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Illustrate your answer with appropriate diagrams and tables.

I. Essay :

(1) Outline the current schema for the tumor (T) staging of urothelial cancer correlating it with the treatment recommendations. (20)

(2) Classify epidermal growth factors (EGFR). Discuss the role of EGFR blockade in the treatment of malignancy. (15)

(3) Discuss the acute and late toxicity of radiation therapy for paediatric brain tumors and their amelioration. (15)

II. Short notes : (6 × 5 = 30)

(a) Hypermethylation.

(b) Deletion 5 q.

(c) Prophylactic surgery.

(d) Radiation recall phenomenon.

(e) Calretinin.

(f) Number needed to treat.

[KS 017] **Sub. Code : 1301**

D.M. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Medical Oncology

Paper I — BASIC SCIENCES

(RADIATION PHYSICS, TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Q.P. Code : 161301

Time : Three hours Maximum : 100 marks

Answer ALL questions.

I. Essay :

1. Briefly discuss tumor cell kinetics its control mechanisms and the mechanism of action of chemotherapeutic agents based on it. (20)

2. Outline the pathogenesis of chemotherapy induced emetic syndromes and discuss its preventive strategies. (20)

II. Short notes : (10 × 6 = 60)

(1) Comparative genomic hybridization

(2) Sorafenib

(3) Major histocompatibility complex

(4) Stereostatic radiotherapy

(5) Hyper fractionation

(6) P-Value

(7) Hyperthermia

(8) Electron threpy

(9) Antiangiopathic agents

(10) Tumor lysis syndrome.

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August 2008

[KT 017] **Sub. Code: 1301**

D.M. DEGREE EXAMINATION

(Higher Specialities)

(Revised Regulations)

Branch VII – Medical Oncology

Paper I – BASIC SCIENCES

(Radiation physics tumour biology, Biochemistry, Biometry,

Immunology & Pharmacology)

Q.P. Code: 161301

Time: Three hours **Maximum: 100 Marks**

Answer ALL questions

Draw suitable diagrams wherever necessary.

I. Essays: **2 x 20 = 40**

1. Discuss the current status of DNA microarray profiling in the management of malignant tumours.
2. Briefly outline the risk factors and pathogenesis of drug induced cardiotoxicity and its preventive strategies.

II. Write short notes on: **10 x 6 = 60**

1. Erlotinib.
2. Clonal Evolution.
3. Acute Rejection
4. Partial breast irradiation.
5. Phase III clinical trial.
6. Information modelling.
7. Immunotoxins.
8. Steps in cancer drug development.
9. Continuous hyperfractionated. Accelerated radiation therapy.
10. Goldie – coldman hypothesis.

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February 2009

[KU 017] **Sub. Code: 1301**

D.M. DEGREE EXAMINATION

(Higher Specialities)

(Revised Regulations)

Branch VII – Medical Oncology

Paper I – BASIC SCIENCES

(Radiation physics tumour biology, Biochemistry, Biometry,

Immunology & Pharmacology)

Q.P. Code: 161301

Time: Three hours **Maximum: 100 Marks**

Answer ALL questions

Draw suitable diagrams wherever necessary.

I. Essays: **2 x 20 = 40**

1. A 30 years old male has been diagnosed to have Hodgkin's Lymphoma stage II B. Discuss plan of investigations with rationale and briefly line of management.
2. Discuss briefly pharmacology of drugs used during the induction therapy of childhood acute lymphoblastic leukemia.

II. Write short notes on: **10 x 6 = 60**

1. Newer Antiemetic drugs.
2. Advances in radiation therapy for thoracic cancer.
3. Survival plots.
4. Immunophenotyping for chronic lymphoproliferative disorders.
5. Biology of cancer cachexia.
6. Determination of Sample Size for a clinical trial.
7. K-ras mutations.
8. Venous thromboembolic complications of cancer.
9. PSA (Prostate Specific Antigen).
10. Molecular diagnosis of chimerism.

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August 2009

[KV 017] **Sub. Code: 1301**

D.M. DEGREE EXAMINATION

(Higher Specialities)

(Revised Regulations)

(Common to All Regulations)

Branch VII – Medical Oncology

Paper I – BASIC SCIENCES

(Radiation physics tumour biology, Biochemistry, Biometry, Immunology & Pharmacology)

Q.P. Code: 161301

Time: Three hours **Maximum: 100 Marks**

Answer ALL questions

Draw suitable diagrams wherever necessary.

I. Essays: **2 x 20 = 40**

1. Describe the pathogenesis of tobacco induced cancers. Brief note on tobacco induced cancers.
2. Define angiogenesis, factors regulating angiogenesis and role of AntivegF in the management of lung cancer.

II. Write short notes on: **10 x 6 = 60**

1. P53 gene.
2. HPV vaccines.
3. Apoptosis.
4. Dose intensity and dose density.
5. Image guided intervention in G.I. oncology.
6. Biomarkers in testicular tumor.
7. Bortesome (Protersome inhibitors).
8. I.M.R.T (Intensity Modulated Radiotherapy).
9. Tumor infiltrating hymphocytes.
10. Survellence – Tesicular tumor.

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August 2011

[KZ 017] **Sub. Code: 1301**

DOCTORATE OF MEDICINE (D.M.) DEGREE EXAMINATION
(SUPER SPECIALITIES)

BRANCH VII – MEDICAL ONCOLOGY
BASIC SCIENCES
(RADIATION PHYSICS TUMOUR BIOLOGY, BIOCHEMISTRY, BIOMETRY, IMMUNOLOGY AND PHARMACOLOGY)

Q.P. Code: 161301

Time : 3 hours (180 Min) **Maximum : 100 marks**

Answer ALL questions in the same order.

I. Elaborate on :	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. Describe cancer cell kinetics and clinical application of chemotherapy, dose intensity and combination chemotherapy.	11	35	15
2. Predictive and prognostic molecular markers of pharmacogenomics and their application in clinical practice.	11	35	15
II. Write notes on :			
1. Cancer stem cell and targeted therapy.	4	10	7
2. Ionising radiation and cancer.	4	10	7
3. Obesity and cancer.	4	10	7
4. Organ selective growth of metastases.	4	10	7
5. Toxicity of high dose interleukin.	4	10	7
6. Tyrosine kinase inhibitors.	4	10	7
7. Proteosome inhibitors in cancer treatment.	4	10	7
8. Molecular epidemiology.	4	10	7
9. Role of laparoscopy in management of Gynaecological Cancer.	4	10	7
10. Proteomics in cancer detection.	4	10	7

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[LB 017] **AUGUST 2012** **Sub. Code: 1301**

D.M – MEDICAL ONCOLOGY

Paper – I BASIC SCIENCES

Q.P. Code: 161301

Time: 3 hours **Maximum: 100 marks**

(180 Min)

Answer ALL questions in the same order.

I. Elaborate on:	**Pages (Max.)**	**Time (Max.)**	**Marks (Max.)**
1. Discuss in detail role of apoptosis in tumour progression. Briefly describe the drugs targeting the Bcl-2 family in Clinical Oncology.	16	35	15
2. Describe in detail the mechanisms of viral oncogenesis. Discuss the current status of HPV Preventive Vaccine strategies.	16	35	15

II. Write notes on:

1. Clinical indications and toxicity of sorafenib.	4	10	7
2. Role of ionising radiation in carcinogenesis.	4	10	7
3. Relevance of Proteomics in Cancer screening.	4	10	7
4. Electron Beam therapy and clinical indications.	4	10	7
5. Interim analysis and relevance in clinical trials in Oncology.	4	10	7
6. Smoking Cessation strategies.	4	10	7
7. Familial Adenomatous Polyposis syndrome.	4	10	7
8. Clinical Indications and Toxicity of Pemetrexed.	4	10	7
9. Principles of Cyberknife treatment and indications.	4	10	7
10. Role of Prophylactic surgery in Oncology.	4	10	7

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[LC 017] **FEBRUARY 2013** **Sub: Code:1301**

D.M –MEDICAL ONCOLOGY

Paper – I BASIC SCIENCES

Q.P. Code : 161301

Time : 3 hours **Maximum : 100 marks**

(180 Min)

I. Elaborate on: **(2x15=30 marks)**

1 Discuss the role of Tumour markers in cancer with appropriate examples.

2. Give details on the role of the immune system in cancer development and discuss the approaches for cancer immunotherapy

II Write notes on: **(10x7marks=70marks)**

1 Drug induced second malignancies including their management

2 Applications of Next generation sequencing in oncology

3 Molecular basis, clinical features and management of Li Fraumeni Syndrome

4 Indications, contraindications and basic principles of Stereotactic Radiosurgery

5 Molecular events involved in apoptosis

6 Pulmonary toxicity due to anti-cancer agents

7 Management of drug extravasations

8 Tyrosine kinase receptors in cancer

9 Oncological applications of non-ionizing radiation

10 Drugs acting on Topoisomerase including their toxicity

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(LD 017) **AUGUST 2013** **Sub. Code:1301**

D.M. – MEDICAL ONCOLOGY
Paper – I BASIC SCIENCES
Q.P.Code: 161301

Time: Three Hours **Maximum: 100 marks**

I. Elaborate on: **(2X15=30)**

1. Discuss the role of Tobacco in cancer including the mechanisms involved. Highlight the salient measures taken in our country to control tobacco use.
2. Discuss the types of ionizing radiation and their applications in oncological practice and their side effects.

II. Write notes on: **(10X7=70)**

1. Fusion genes in solid tumours and their importance in oncological practice.
2. Quantitative Real Time PCR and its uses in oncology
3. Molecular basis, clinical features and management of PTEN Syndrome
4. Indications, contraindications and basic principles of Radio-immunotherapy
5. Molecular events involved in metastasis
6. Neuro-toxicity due to anti-cancer agents
7. T_H1 versus T_H2 response
8. DNA repair mechanisms
9. Immunodeficiency and cancer
10. Chemical carcinogens with examples

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(LE 017) **FEBRUARY 2014** **Sub. Code:1301**

D.M. – MEDICAL ONCOLOGY
Paper – I BASIC SCIENCES
Q.P.Code: 161301

Time: Three Hours **Maximum: 100 marks**

I. Elaborate on: **(2X15=30)**

1. Discuss the pharmacology of paclitaxol and its modifications in chemo therapy.

2. Describe the signalling cascade in epithelial cells and the mechanisms by which they can contribute to the development of a cancer cell.

II. Write notes on: **(10X7=70)**

1. Spectral Karyotyping.
2. Bio-informatics in oncology
3. Molecular basis, clinical features and management of Muir-Torre Syndrome.
4. Indications, contraindications and basic principles of adoptive immunotherapy.
5. Molecular events involved in metastasis.
6. Skin toxicity due to anti-cancer agents.
7. Management of Bleomycin lung toxicity
8. Hormone receptors in cancer.
9. Photodynamic therapy
10. Drugs acting on mitotic spindles including their toxicity.

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