

APRIL - 2001

[KD 056]

Sub. Code : 1801

M.Ch. DEGREE EXAMINATION

(Higher Specialities)

Branch VII — Surgical Oncology

(Revised Regulations)

**Paper I — BASIC SCIENCES APPLIED TO
SURGICAL ONCOLOGY**

Time : Three hours

Maximum : 100 marks

1. Describe the role of Viruses in carcinogenesis. (25)
2. What is paraneoplastic Syndrome? Describe various conditions produce para neoplastic syndromes. (25)
3. Write short notes on : (5 × 10 = 50)
 - (a) LET (Linear Energy Transfer)
 - (b) Brachytherapy
 - (c) Telomerase inhibition
 - (d) Southern blot
 - (e) Asbestos as carcinogenesis.

NOVEMBER - 2001

[KE 056]

Sub. Code : 1801

3

Write short notes on :

- (a) Prostate specific antigen
- (b) Flow cytometry
- (c) Phase III Clinical Trials
- (d) Hyper Calcemia
- (e) Cytoreductive surgery

(5 × 10 = 50)

M.Ch. DEGREE EXAMINATION

(Higher Specialities)

(Revised Regulations)

Branch VII Surgical Oncology

**Paper I — BASIC SCIENCES AS APPLIED TO
SURGICAL ONCOLOGY**

Time : Three hours

Maximum : 100 marks

1. What are Electro magnetic Radiations? Outline principles, production and usage of these radiations in Oncology. (25)

2. Which are the Antimicro tubular agents used in Oncology? Describe any one of them under following headings :

- (a) Mechanism of Action
- (b) Dosage
- (c) Mode of Administration
- (d) Clinical uses
- (e) Toxicity and Drug resistance

(25)

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[KE 056]

MARCH - 2002

[KG 056]

Sub. Code : 1801

M.Ch. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Surgical Oncology

**Paper I — BASIC SCIENCES AS APPLIED TO
SURGICAL ONCOLOGY**

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Discuss briefly the tumour cell kinetics and methods used for study of growth of human tumours.
(25)
2. Discuss the impact of nutrition on incidence of cancer.
(25)
3. Write briefly on : (5 × 10 = 50)
 - (a) Oncogenes.
 - (b) Prophylactic surgery.
 - (c) PCR.
 - (d) Active Immunotherapy
 - (e) PET.

SEPTEMBER - 2002

[KH 056]

Sub. Code : 1801

M.Ch. DEGREE EXAMINATION.

(Higher Specialities)

Branch VII — Surgical Oncology

(Revised Regulations)

Paper I — BASIC SCIENCES AS APPLIED TO
SURGICAL ONCOLOGY

Time : Three hours

Maximum : 100 marks

Answer ALL questions

- 1 Discuss the role of Genetic changes in malignancy.
(25)
 2. Discuss the impact of environmental pollution on
cancer incidence. (25)
 - 3 Write briefly on : (5 × 10 = 50)
 - (a) Micronutrients
 - (b) Radionecrosis
 - (c) Cell cycle
 - (d) Factors causing resistance to radiation
 - (e) Oestrogen.
-

APRIL - 2004

[KK 056]

Sub. Code : 1801

M.Ch. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Surgical Oncology

Paper I — BASIC SCIENCES AS APPLIED TO
SURGICAL ONCOLOGY

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 × 15 = 30)

(1) Define Apoptosis. How is it regulated? How can it be manipulated for therapeutic purposes?

(2) How is a screening test for cancer evaluated? Discuss the biases caused as a result of a screening programme.

B. Short notes :

(10 × 5 = 50)

- (1) Phase III clinical trial
- (2) Hereditary cancer registry
- (3) Selective estrogen receptor modulators
- (4) Linear energy transfer
- (5) Occupational cancer
- (6) Microarray
- (7) Meta analysis
- (8) Epipodophyllotoxin
- (9) Primary prevention
- (10) Intensity modulated radiation therapy.

AUGUST - 2004

[KL 056]

Sub. Code : 1801

M.Ch. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Surgical Oncology

**Paper I — BASIC SCIENCES AS APPLIED TO
SURGICAL ONCOLOGY**

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.

- (5) In situ hybridisation.
 - (6) T – cells.
 - (7) Familial cancer registry.
 - (8) Aflatoxin.
 - (9) Polymerase chain reaction.
 - (10) Tumour suppressor gene.
-

I Essay : (2 × 15 = 30)

- (1) Discuss cancer as a genetic disease.
- (2) Discuss the basis, principles and practice of chemoradiation in solid tumours.

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

- (1) Photodynamic therapy.
- (2) Metastatic phenotype.
- (3) Average relative dose intensity.
- (4) Viruses in Cancer.

FEBRUARY - 2005

[KM 056]

Sub. Code : 1801

M.Ch. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Surgical Oncology

**Paper I — BASIC SCIENCES AS APPLIED TO
SURGICAL ONCOLOGY**

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) Describe the design and conduct of clinical trials.

(2) Describe the role and effects of radiation in the development of cancer.

II. Short notes : (10 × 5 = 50)

(a) Principles of brachytherapy

(b) Apoptosis

(c) Antigen presenting cells of the immune system

(d) Chromosomal aberrations found in cancer

(e) The process of tumor neovascularisation

(f) Role of HPV in human carcinogenesis

(g) Cohort studies

(h) LET

(i) Aromatase inhibitors

(j) Endosonology.

FEBRUARY - 2006

[KO 056]

Sub. Code : 1801

M.Ch. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Surgical Oncology

**Paper I — BASIC SCIENCES AS APPLIED TO
SURGICAL ONCOLOGY**

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) Describe Cell Cycle and Ionizing Radiation.
Biological effects of Radiation on normal and Cancer
Tissues, Advantages of Particle Beam Therapy.**

**(2) Define Oncogenes, their role on Cancer.
Molecular basis for prognostic factors and cancer
treatment.**

II. Short notes :

(10 × 5 = 50)

- (a) Dendritic cells**
 - (b) Gene amplification**
 - (c) Chi square test**
 - (d) Population based tumour registry**
 - (e) Radio labelled antibodies**
 - (f) Cytokines**
 - (g) Nitrosoureas**
 - (h) Letrozole**
 - (i) Phase III clinical trials**
 - (j) Meta analysis.**
-

AUGUST - 2006

[KP 056]

Sub. Code : 1801

M.Ch. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Surgical Oncology

**Paper I — BASIC SCIENCES AS APPLIED TO
SURGICAL ONCOLOGY**

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) Describe angiogenesis. Discuss the role of
antiangiogenic agents in cancer. (20)**

(2) EGFR receptors and its role in cancer. (15)

**(3) Discuss breast cancer prevention strategies.
(15)**

II. Short notes :

(6 × 5 = 30)

(a) Sestamibi scans in oncology.

(b) Oral premalignant lesions.

(c) Tumor suppressor genes.

(d) Clinical proteomics.

(e) Chromosomal abnormalities in cancer.

(f) Epstein Barr Virus.

FEBRUARY - 2007

[KQ 056]

Sub. Code : 1801

M.Ch. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Surgical Oncology

**Paper I — BASIC SCIENCES AS APPLIED TO
SURGICAL ONCOLOGY**

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 Questions :

**1. Define apoptosis. Strategies for restoring
apoptosis sensitivity to tumors. (Apoptosis regulation).
(20)**

**2. What is Carcinogenesis? Name physical
carcinogenetic materials and mechanism of
carcinogenesis. (15)**

**3. Define the role of PET scan in Cancer diagnosis.
Indications and principle of functional scans in cancer.
(15)**

II. Short notes :

(6 × 5 = 30)

1. Cancer cell differentiation and Therapy.

**2. Write on RISK MARKERS, AND RESPONSE
MARKERS.**

3. Radiation dose-Response relationship.

4. Biological basis of radiation therapy.

5. Interferons in cancer.

6. Karnofsky performance status scale.

[KR 056]

Sub. Code : 1801

M.Ch. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Surgical Oncology

Paper I — BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

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 Questions :

(1) What is a tumor marker? Describe the characteristics of ideal tumor marker and its role in cancer management. (20)

(2) What is ionizing radiation? Discuss the principle of cancer treatment with deep x-ray and describe the molecular changes occur in cancer cell with radiotherapy. (15)

(3) Define carcinogens and list various carcinogens. Describe pathogenesis of cancer due to parasites. (15)

II. Write short notes on : (6 × 5 = 30)

(a) Apoptosis and cell proliferation.

(b) Describe angiogenic chemotherapy.

(c) Pharmacokinetic rationale and limitations of regional chemotherapy.

(d) Describe antimetabolites as chemotherapeutic drugs.

(e) Use of LHRH agonists in cancer management.

(f) What is photodynamic therapy? Discuss the mechanism involved in PDT.

[KS 056]

Sub. Code : 1801

M.Ch. DEGREE EXAMINATION.

(Higher Specialities)

(Revised Regulations)

Branch VII — Surgical Oncology

**Paper I — BASIC SCIENCES AS APPLIED TO
SURGICAL ONCOLOGY**

Q.P. Code. 181801

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

I. Essay Questions: (2 × 20 = 40)

1. Discuss the role of targeted therapy in cancer and the various monoclonal antibodies in use today. (20)

2. Discuss various types of clinical trials, with respect to principles, study design, application and advantages and discuss in detail the need and impact of randomized clinical trials in Oncology. (20)

II. Short notes on :

(10 × 6 = 60)

- (1) Dendritic cells.
 - (2) Cytokines.
 - (3) Radio frequency ablation.
 - (4) IGRT.
 - (5) Cancer Genetics.
 - (6) Brachytherapy.
 - (7) Imaging for minimal residual disease.
 - (8) Herceptin.
 - (9) Gefitinib.
 - (10) Telomerase.
-

August 2008
[KT 056] **Sub. Code: 1801**
M.Ch. DEGREE EXAMINATION
(Higher Specialities)
(Revised Regulations)
Branch VII – SURGICAL ONCOLOGY
Paper I – BASIC SCIENCES AS APPLIED TO
SURGICAL ONCOLOGY
Q.P. Code: 181801
Time: Three hours **Maximum: 100 Marks**

ANSWER ALL QUESTIONS
Draw suitable diagrams wherever necessary.

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

1. Describe the attributes of cancer preventing life style.
2. Discuss the cell cycle in oncology.

II. Write short notes on: **(10 X 6 = 60)**

1. Population based cancer registry.
 2. Brachytherapy for cervical cancer.
 3. Cancer trends in India.
 4. MRI in cancer imaging.
 5. Intraluminal ultrasound.
 6. Radio sensitisers.
 7. Anatomy of neck lymph nodes.
 8. Physiology of ejaculation.
 9. Isolated limb perfusion.
 10. Mapping of sentinel node in breast cancer.
-

February 2009

[KU 056]

Sub. Code: 1801

**M.Ch. DEGREE EXAMINATIONS
(Higher Specialities)
(Common to All Regulations)**

**Branch VII – Surgical Oncology
Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY
Q.P. Code: 181801**

Time: Three hours

Maximum: 100 Marks

**ANSWER ALL QUESTIONS
Draw suitable diagrams wherever necessary.**

I. Essays:

2 x 20 = 40 Marks

1. What is a PET scan? And role of PET scan in the diagnosis and follow up of cancer patients.
2. What is Ultrasonography? How intra operative ultrasonography is useful in cancer surgery with examples.

II. Write short notes on:

10 X 6 = 60 Marks

1. What is a tumor marker and it's role in cancer diagnosis.
2. Phase III clinical trials.
3. Mohs microsurgery.
4. Discuss the physiology of Rectal continence.
5. Turban tumor.
6. Discuss on tumor suppressor genes with examples.
7. Turcot's syndrome.
8. Interstitial radiotherapy in cancer.
9. Describe the principle and indications of PDT.
10. What is a fiberoptic? And physics involved in of fiberoptic scopes in surgical practice.

August 2009

[KV 056]

Sub. Code: 1801

**M.CH DEGREE EXAMINATIONS
(Higher Specialities)
(Common to All Regulations)**

Branch VII – Surgical Oncology

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three hours

Maximum: 100 Marks

ANSWER ALL QUESTIONS

Draw suitable diagrams wherever necessary.

I. Essays:

2 x 20 = 40 Marks

1. Describe in detail the surgical anatomy of the liver. Briefly elaborate surgical procedures for hepatocellular carcinoma.
2. Describe principles involved in screening for cancer. Outline the evidence for lung cancer screening.

II. Write short notes on:

10 X 6 = 60 Marks

1. RET Proto-oncogene.
2. Biases in medical research.
3. Role of palliative care in terminal cancer.
4. Nanotechnology – its role in cancer.
5. Isolated limb perfusion.
6. Phases of clinical trials.
7. HPV and cervical cancer.
8. Chemo prevention in head and neck cancer.
9. Genomics in cancer.
10. Institutional review board.

February 2010

[KW 056]

Sub. Code: 1801

M.Ch. DEGREE EXAMINATIONS

**(Super Specialities)
(Revised Regulations)
(Common to all candidates)**

Branch VII – Surgical Oncology

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three hours

Maximum: 100 Marks

ANSWER ALL QUESTIONS

Draw suitable diagrams wherever necessary.

I. Essays:

2 x 20 = 40 Marks

1. Discuss cell cycle, Ionising radiation, biological effects of radiation on normal and cancer tissues. Advantages of particle beam therapy.
2. Discuss in detail, the mechanism of action, mechanism of resistance, pharmacology of drug interaction, administration, toxicity and clinical uses of taxanes.

II. Write short notes on:

10 X 6 = 60 Marks

1. What is Photodynamic therapy? Discuss its mechanism and uses in cancer treatment.
2. Targeted chemotherapy.
3. Radio immuno guided surgery.
4. Intensity modulated radiotherapy.
5. Apoptosis and cell proliferation.
6. Pharmacokinetic rationale and limitations of regional chemotherapy.
7. Radiosensitisers.
8. Hyperfractionation.
9. Natural killer cell.
10. Meta analysis.

February 2011

[KY 056]

Sub. Code: 1801

MASTER OF CHIRURGIAE (M.Ch.) DEGREE EXAMINATIONS

(Super Specialities)

Branch VII – SURGICAL ONCOLOGY

(Revised Regulations)

Common to all candidates

Paper I – BASIC SCIENCES APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three hours

Maximum: 100 Marks

Answer ALL questions

Draw suitable diagrams wherever necessary.

I. Essays:

(2 x 20 = 40)

1. Discuss the relationship between Diet and Cancer.
2. Discuss the biology of drug resistance in Cancer.

II. Write short notes on:

(10 x 6 = 60)

1. Proteosome inhibitors.
2. Programmed cell death.
3. Physical carcinogens.
4. Split dose repair in Radiotherapy.
5. Immune escape.
6. Topoisomerase interacting agents.
7. Meta analysis.
8. Tyrosine kinase inhibitors.
9. Sumitib.
10. Anti-angiogenesis agent.

August 2011

[KZ 056]

Sub. Code: 1801

**MASTER OF CHIRURGIAE (M.Ch.) DEGREE EXAMINATION
(SUPER SPECIALITIES)**

BRANCH VII – SURGICAL ONCOLOGY

BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code:181801

**Time : 3 hours
(180 Min)**

Maximum : 100 marks

Answer ALL questions in the same order.

I. Elaborate on :

**Pages Time Marks
(Max.) (Max.) (Max.)**

- | | | | |
|--|----|----|----|
| 1. Discuss the biological aspects of Radiotherapy. | 11 | 35 | 15 |
| 2. Discuss the role of diet in cancer. | 11 | 35 | 15 |

II. Write notes on :

- | | | | |
|---------------------------------------|---|----|---|
| 1. Alkylating agents in chemotherapy. | 4 | 10 | 7 |
| 2. Cohort study. | 4 | 10 | 7 |
| 3. Stem cell therapy in cancer. | 4 | 10 | 7 |
| 4. Cell cycle. | 4 | 10 | 7 |
| 5. Passive immunological treatments. | 4 | 10 | 7 |
| 6. Hospice care. | 4 | 10 | 7 |
| 7. U.V. Radiation and cancer. | 4 | 10 | 7 |
| 8. Radio frequency ablation. | 4 | 10 | 7 |
| 9. Complications of chemotherapy. | 4 | 10 | 7 |
| 10. AIDS and Cancer. | 4 | 10 | 7 |

February 2012

[LA 056]

Sub. Code: 1801

MASTER OF CHIRURGIAE (M.CH) DEGREE EXAMINATION

(SUPER SPECIALITIES)

BRANCH VII – SURGICAL ONCOLOGY

BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

**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. Discuss about Viral carcinogenesis and cancer.	16	35	15
2. Discuss the principles of screening and the basis for developing and evaluating a cancer screening program.	16	35	15

II. Write notes on :

1. Pathophysiology of Cancer cachexia.	4	10	7
2. RET Proto-oncogene and thyroid cancer.	4	10	7
3. Comparative genomic hybridization.	4	10	7
4. Anti-angiogenic therapy in solid tumors.	4	10	7
5. Single nucleotide polymorphism.	4	10	7
6. Retinoic acid and cancer.	4	10	7
7. Linear Energy Transfer.	4	10	7
8. Prophylactic salpingo-oophorectomy.	4	10	7
9. Double strand breaks.	4	10	7
10. Levels of Evidence.	4	10	7

[LB 056]

AUGUST 2012

Sub. Code: 1801

M.Ch – SURGICAL ONCOLOGY

Paper – I BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

**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. Discuss the uses and advances in DNA microarray technology in cancer.	16	35	15
2. Discuss briefly about the hereditary predisposition to colorectal cancers and the impact of microsatellite instability (MSI).	16	35	15

II. Write notes on :

1. Elaborate on the association between VHL gene and Renal cell carcinoma.	4	10	7
2. Discuss the function and the clinical significance of Heat shock proteins.	4	10	7
3. Describe the pharmacokinetics of Capecitabine.	4	10	7
4. Elaborate on the role of tumor stroma interactions in tumor metastasis.	4	10	7
5. Discuss the biological basis of Fractionation in Radiotherapy.	4	10	7
6. Discuss the role of Adenomatosis polyposis coli (APC) gene in colorectal cancer.	4	10	7
7. Describe the statistical design of a Non inferiority trials.	4	10	7
8. Elaborate on the role of prophylactic thyroidectomy in medullary carcinoma thyroid.	4	10	7
9. Describe the mechanisms of cell cycle check points in genome maintenance.	4	10	7
10. Discuss the clinical significance of detection of circulating tumor cells in solid tumors.	4	10	7

[LC 056]

FEBRUARY 2013

Sub.Code:1801

M.Ch-SURGICAL ONCOLOGY

Paper – I BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code:181801

**Time: 3 hours
(180 Min)**

Maximum :100 marks

I.Elaborate on:

(2x15marks=30marks)

1. Discuss the Principles of combining Anti cancer agents with Radiotherapy
2. Discuss the role of Epigenetic biomarkers for early detection of cancer.

II.Write short notes:

(10x7marks=70marks)

1. Discuss the role of Waterfall plots in accessing clinical response
2. Discuss the significance of KRAS mutations in colorectal cancers
3. Pathogenesis of radiotherapy and chemotherapy induced oral mucositis
4. Discuss the molecular biology of Translocation associated sarcomas.
5. Pathway oriented models of Cancer Genome Analysis
6. Mechanisms of resistance to Tyrosine Kinase inhibitors.
7. Discuss the role of Anueploidy and Cancer
8. Discuss the issues concerning telomerase maintenance and cancer.
9. Role of Asbestos in the aetiopathogenesis of cancer.
10. Enumerate the surrogate markers for angiogeneic therapy.

M.Ch. – SURGICAL ONCOLOGY
Paper – I BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY
Q.P.Code: 181801

Time: Three Hours

Maximum: 100 marks

I. Elaborate on:

(2X15=30)

1. Enumerate the various radiological interventional procedures and discuss the technique and their uses in cancer management.
2. Role of diet and its role in carcinogenesis.

II. Write notes on:

(10X7=70)

1. Evaluation and management of unknown primary with axillary nodal metastasis.
2. Discuss about telomeres, telomerases and their role in cancer development.
3. Explain about molecular mechanisms involved in apoptosis.
4. Discuss about the Phases of cell cycles and its regulation.
5. Hyperthermic intraperitoneal chemotherapy.
6. Discuss about Radiation sensitisers.
7. Discuss about Compton effect and Bragg's peak.
8. Enumerate and compare different evaluation criteria for response assessment.
9. Pharmacokinetics of Capecitabine.
10. Explain Laser capture microdissection and its applications.

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P.Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on: (2 x 15 = 30)

1. Define carcinogens and classify various carcinogens. Describe pathogenesis of cancer due to physical agents.
2. What is a functional scan? Discuss the role of functional scans in the diagnosis and follow up of cancer patients.

II. Write notes on: (10 x 7 = 70)

1. Platinum compounds in the treatment of cancer.
2. Describe the principle and indications of Gamma knife.
3. What is LASER? Write notes on the physics involved in the clinical practice of cancer treatment.
4. Discuss Proteomics.
5. Role of Antioxidants in cancer.
6. Discuss IMRT.
7. Microassay technology.
8. Genetherapy.
9. Biologic response modifiers.
10. Case control studies.

(LI 056)

FEBRUARY 2016

Sub. Code:1801

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P.Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Elaborate in detail the process of Metastases.
2. Write in detail about the types of DNA repair and their contribution in cancer prevention.

II. Write notes on:

(10 x 7 = 70)

1. Inverse square law.
2. BRCA carrier.
3. Aromatic amines and cancer.
4. Epstein Barr Virus associated cancers.
5. Penetrance.
6. Recall bias.
7. Principles of adjuvant chemotherapy.
8. Phase II clinical trials.
9. Port site metastases.
10. Dietary fibre.

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P.Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Define tumor marker. Describe the characteristics of ideal tumor markers and their role in cancer diagnosis and treatment.
2. What is ionizing radiation? Discuss the principle of cancer treatment with x-ray and describe the molecular changes that occur in a cancer cell with radiotherapy.

II. Write notes on:

(10 x 7 = 70)

1. Discuss on Radiobiologic Efficiency in radiotherapy.
2. Discuss the role of interventional radiology in cancer therapy.
3. What is brachytherapy and it's role in treatment of solid tumors?
4. Describe angiogenic chemotherapy.
5. Discuss inverted papilloma.
6. Role of interferons in cancer treatment.
7. Describe antimetabolites as chemotherapeutic drugs.
8. Rationale and limitations of regional chemotherapy.
9. Discuss on phase III clinical trials in cancer therapy.
10. Immunohistochemistry in a patient with carcinoma unknown – primary.

(LK 056)

FEBRUARY 2017

Sub. Code:1801

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P.Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Define screening for disease. Write in detail about the requisites for successful screening. Write about the screening for Breast Cancer in India.
2. What is concurrent chemo-radiotherapy? Discuss its principles and current applications. Write about its use of in bladder cancer.

II. Write notes on:

(10 x 7 = 70)

1. P- value.
2. LDR- Brachytherapy.
3. FISH testing.
4. Nicotine replacement therapy.
5. Levels of Evidence.
6. Cell survival curve.
7. Oxaliplatin.
8. Gene testing.
9. Cyclins.
10. Chemoprevention.

(LL 056)

AUGUST 2017

Sub. Code:1801

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P.Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss about angiogenesis and write in detail about its relevance in therapy.
2. What is Genetic Counseling? Discuss about the process and the current indications for offering it to patients.

II. Write notes on:

(10 x 7 = 70)

1. Frozen section in ovarian neoplasms.
2. Cell cycle check points.
3. Telomerases.
4. RECIST criteria.
5. Inverse planning.
6. Liquid based cytology.
7. High dose methotrexate.
8. Lead time bias and its classical significance.
9. HPV testing for cervical cancer screening.
10. Microarray.

(LM 056)

FEBRUARY 2018

Sub. Code: 1801

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P.Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss in detail about cancer genetic counseling.
2. What are tobacco related cancers? Discuss the pathogenesis of these cancers.

II. Write notes on: **(10 x 7 = 70)**

1. Caretaker genes.
2. Cell cycle check points.
3. Aflatoxins.
4. Length time bias.
5. Secondary prevention of cancer.
6. Ultraviolet carcinogenesis.
7. Linear energy transfer.
8. P- value.
9. Microarray studies.
10. Paclitaxel.

(LN 056)

AUGUST 2018

Sub. Code: 1801

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P.Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. What is minimal access surgery? Discuss its current role in Oncology.
2. What is neo-adjuvant therapy? Discuss in detail its principles, advantages, disadvantages with special reference to osteosarcoma.

II. Write notes on:

(10 x 7 = 70)

1. Gatekeeper genes.
2. Seed and soil hypothesis.
3. Pesticides and cancer.
4. Base excision repair.
5. E6 and E7 genes.
6. Cowdens syndrome.
7. Lead time bias.
8. Primary prevention.
9. Oxaliplatin.
10. Radiobiologic effectiveness.

(LO 056)

FEBRUARY 2019

Sub. Code: 1801

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on: (2 x 15 = 30)

1. Discuss about the targetable driver mutations in Lung cancer carcinogenesis.
2. Explain the role of signal transduction pathways in oncology.

II. Write notes on: (10 x 7 = 70)

1. Potential Clinical application of Dendritic cell vaccines in Oncology.
2. Role of Circulating Tumor Cells in Prognostication.
3. Explain the significance of Phase 1 clinical trials in Oncology.
4. Molecular Biology of Ewing's Sarcoma family of tumors.
5. Role of Adoptive cell therapy in Cancer Immunotherapy.
6. The role of Genetic polymorphisms as a potential risk factor in Esophageal cancers.
7. Elaborate on the concept of lead time bias in cancer screening.
8. Discuss the association of Microsatellite Instability and Colorectal carcinomas.
9. Discuss about the Oncologic Applications and Potential toxicities of Interferons.
10. Rural Population Based Cancer Registries in India.

(LP 056)

AUGUST 2019

Sub. Code: 1801

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss the role of Human Papillomavirus in Cancers and vaccination against it.
2. What is Monoclonal Antibody and its role in management of Breast cancer?

II. Write notes on: **(10 x 7 = 70)**

1. Liquid based biopsy and it's clinical application.
2. Enumerate Platinum Analogs and their complications.
3. Radiation recall and drugs causing it.
4. RECIST Criteria.
5. MRI in Cancer.
6. Human Genome sequencing and its role in cancer management.
7. Virchow's node.
8. TAC Regimen and management of febrile neutropenia.
9. Smoking cessation techniques.
10. Boundaries of oral cavity and its sub-sites.

(LR 056)

**NOVEMBER 2020
(AUGUST 2020 SESSION)**

Sub. Code: 1801

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss about any five important cancer susceptibility syndromes.
2. Discuss molecular classification of breast cancer.

II. Write notes on: **(10 x 7 = 70)**

1. Screening for colo-rectal cancer.
2. Helicobacter pylori and stomach malignancies.
3. Anatomical basis of Pectoralis Major Myocutaneous flap.
4. Principles of combining anticancer agents with radiation therapy.
5. Doxorubicin.
6. Bone metastases and their management in thyroid cancers.
7. Standard fractionation of radiotherapy and its modifications.
8. Aromatase inhibitors.
9. Management of cancer patient who continues to smoke tobacco.
10. Hepatitis B reactivation during cancer treatment & it's management.

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss about the role and mechanism of action and the role of poly ADP Ribose Polymerase (PARP) inhibitors in the management of breast and ovarian cancers.
2. Describe the Epithelial-to-Mesenchymal transition program in the regulation of invasion and metastasis.

II. Write notes on:

(10 x 7 = 70)

1. Advances in molecular diagnostics in the management of Thyroid Cancers.
2. Role of extra-corporeal irradiation in the management of extremity Sarcomas.
3. Mechanism of carcinogenesis of Areca nut in oral cancers.
4. Describe the association between physical activity and cancers.
5. Association of tumor infiltrating lymphocytes and cancer.
6. Association of electronic nicotine delivery systems and cancer.
7. Classification of epidemiological study designs.
8. Mechanism of action of platinum analogues.
9. Role of aromatase inhibitors in breast cancer prevention.
10. Briefly enumerate two monoclonal antibodies that have been approved in solid tumors.

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the aetio-pathogenesis of hepatocellular carcinoma induced by hepatitis viruses.
2. Enumerate the principles of concurrent chemo-radiation and its impact in the treatment of any two cancers.

II. Write notes on:

(10 x 7 = 70)

1. Mechanism of action of tyrosine kinase Inhibitors.
2. Role of brachytherapy in the management of extremity soft tissue sarcomas.
3. Clinical application of fluorescence in situ hybridization in oncology.
4. Role of low dose CT scans in lung cancer screening.
5. Enumerate the principles of stereotactic radiosurgery.
6. Association of breast cancer density and risk of breast cancers.
7. Describe the metabolic pathway of tamoxifen biotransformation.
8. Role of adoptive cell immunotherapy in oncology.
9. Describe the components of cancer genetic counselling session.
10. Describe the effect of tobacco use and cessation on the risk of second primary tumours.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[MCH 0222]

FEBRUARY 2022

Sub.Code :1801

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Molecular pathogenesis of oncogenic viruses. Discuss about HIV related cancers in detail.
2. Discuss various Risk reduction surgery in cancer prevention.

II. Write notes on:

(10 x 7 = 70)

1. Next generation sequencing
2. Apoptosis
3. HPV vaccines
4. Meta analysis
5. Radiosensitisers
6. Enzalutamide
7. TACE
8. Prostrate cancer screening
9. Molecular testing & its clinical use in Lung cancer
10. Radiobiological principles of Fractionisation& common Fractionisation schemes in practice.

THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

(MCH 0822)

AUGUST 2022

Sub. Code: 1801

M.Ch. – SURGICAL ONCOLOGY

Paper I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss briefly the various Clinical response assessment criteria. What are the limitations of these criteria in the molecular targeted therapy assessment.
2. Explain the principles of cancer screening. Briefly describe colorectal cancer screening in High & average risk individual.

II. Write notes on: **(10 x 7 = 70)**

1. Cancer Genome.
2. FISH and it's clinical applications.
3. Levels of Clinical Evidences.
4. Dietary fibre in cancer prevention.
5. APBI.
6. Indications, types and techniques of Bone marrow transplant.
7. mTOR inhibitors.
8. Genetic counselling.
9. Cell survival curve and its Clinical application in radiation therapy.
10. Techniques of future liver remnant assessment.

THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

(MCH 0223)

FEBRUARY 2023

Sub. Code: 1801

M.Ch. – SURGICAL ONCOLOGY

PAPER I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Discuss the principles of PET scan and elucidate two tumours wherein it is of significant use in initial staging.
2. What are Bisphosphonates? Write in detail about their mechanism of action and indications and toxicity.

II. Write notes on:

(10 x 7 = 70)

1. Principle of hypofractionation.
2. Cardiotoxicity and its management
3. Dose dense chemotherapy.
4. Colorectal screening guidelines.
5. Meta-analysis.
6. Single Nucleotide Polymorphism.
7. Carcinogens in tobacco.
8. Sanger sequencing.
9. Risk reducing surgery in Breast cancer.
10. HER2 in gastric cancer.

THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

(MCH 0124)

JANUARY 2024

Sub. Code: 1801

M.Ch. – SURGICAL ONCOLOGY

PAPER I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

1. Tumor Lysis Syndrome – pathogenesis and manifestations.
2. Discuss about the different types of Molecular Diagnostics and Application.

II. Write notes on:

(10 x 7 = 70)

1. Taxanes.
2. SBRT.
3. Physical Carcinogenesis.
4. Obesity and cancer.
5. Aromatase inhibitors.
6. Hereditary Non Polyposis Cancer Syndrome.
7. Tumor Markers.
8. Principles of Chemo irradiation.
9. Field Cancerization.
10. Role of Endoscopic Ultrasonogram in Cancer.

THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

(MCH 0225)

FEBRUARY 2025

Sub. Code: 1801

M.Ch. BRACH VII – SURGICAL ONCOLOGY

PAPER I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

(5+5+5)

1. a) Steps of Next generation sequencing with a diagram.
b) Differentiate sanger sequencing with NGS.
c) Clinical applications of NGS.
2. a) Molecular pathogenesis of Breast cancer with a diagram.
b) Mechanism of resistance to anti hormonal agents in breast cancer.
c) Strategies to overcome hormonal resistance in breast cancer.

(5+5+5)

II. Write notes on:

(10 x 7 = 70)

1. Post test genetic counselling.
2. Bayesian methods and its application in trials.
3. Synthetic lethality.
4. Exercise intervention trials in prevention of cancer.
5. Draw the dose depth curve for photons and protons. Explain its role in efficacy and toxicity during either therapy.
6. Repair pathways for ds DNA breaks.
7. Venous thromboembolism prophylaxis in Oncology.
8. Mechanism, principles and dosing of hemostatic RT.
9. Detecting false positive studies in literature.
10. Cervical cancer screening in India.

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

(MCH 0825)

AUGUST 2025

Sub. Code: 1801

M.Ch. BRANCH VII – SURGICAL ONCOLOGY

PAPER I – BASIC SCIENCES AS APPLIED TO SURGICAL ONCOLOGY

Q.P. Code: 181801

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 15 = 30)

(5+5+5)

1. a) Photon and tissue interactions.
b) Radiobiological basis of fractionization.
c) Precision Radiotherapy.

(10+5)

2. a) DNA repair pathways.
b) Chromosome painting.

II. Write notes on:

(10 x 7 = 70)

1. NNT (number needed to treat).
2. Pembrolizumab.
3. Testing for micro satellite instability.
4. Magnitude of clinical benefit scale in solid tumors.
5. Split renal function testing.
6. HPV vaccination in India.
7. National cancer control programme in India.
8. Calvert formula and its application.
9. Kaplan Meier curves.
10. Screening recommendation for Lynch syndrome.
