

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**MD (CLINICAL ONCOLOGY) PART I EXAMINATION – NOVEMBER 2023**

**Date:- 07<sup>th</sup> November 2023**

**Time:- 12.00 noon - 12.45 p.m.**

**PAPER II**

**If the examiners cannot read your writing, they will be unable to give you full credit for your knowledge.**

**CANCER BIOLOGY**

**Answer all questions.**

**Each question carries 100 marks.**

**Each question to be answered in a separate book.**

1.

1.1. Gain of function mutations in proto-oncogenes are known to cause oncogenesis. Briefly discuss the underlying mechanisms involved in this process. (30 marks)

1.2.

1.2.1. Name three (03) mismatch repair (MMR) genes. (6 marks)

1.2.2. Briefly discuss the role of MMR genes in hereditary colorectal cancer pathogenicity. (14 marks)

1.3.

1.3.1. Using a clearly labelled diagram indicate the cell cycle checkpoints. (20 marks)

1.3.2. State one function each for the checkpoints indicated. (15 marks)

1.4. Derangements in the growth factor signaling pathways are often seen in cancer cells.

Name three (03) components of the growth factor signaling pathways which determine the treatment plan for certain cancers. (15 marks)

*Master copy*  
POSTGRADUATE INSTITUTE OF MEDICINE  
UNIVERSITY OF COLOMBO

**MD (CLINICAL ONCOLOGY) PART II EXAMINATION - DECEMBER 2023**

**Date:-** 11<sup>th</sup> December 2023

**Time:-** 2.00 p.m. - 4.00 p.m.

**PAPER I**

**Answer all four (04) questions.**

**Answer each question in a separate book.**

**Please write legibly.**

1.

- 1.1. A 24-year-old national swimmer presented with a right testicular mass. After the staging investigations, he was found to have a right testicular mass with associated para-aortic lymphadenopathy measuring 4 cm and eight lung lesions, the largest measuring 2 cm in maximum dimension. He undergoes right inguinal orchiectomy. His serum alpha-feto protein was 4400 IU/mL and his serum beta hCG and LDH were normal. Histology of the testicular mass revealed a yolk-sac tumour.

Explain your treatment plan of this patient. (25 marks)

- 1.2. A 36-year-old man presented with a testicular yolk-sac tumour with extensive para-aortic lymphadenopathy measuring 6.5 cm in maximum dimension. After appropriate treatment, the CT scan revealed a 4 cm mass in the para-aortic region just below the renal hilum level with normalization of the tumour markers (His serum alpha-feto protein was initially 890 IU/mL).

Explain the appropriate course of action for this patient. (25 marks)

- 1.3. A 40-year-old man with a left testicular tumour undergoes left inguinal orchiectomy and found to have a testicular seminoma with left 2 cm para-aortic lymphadenopathy. He has a history of long-standing active rheumatoid arthritis, treated with methotrexate and having evidence of bone marrow suppression.

How would you treat this patient? (25 marks)

- 1.4. A 25-year-old man with metastatic yolk-sac tumour with initial serum alpha-feto protein (AFP) of 2400 IU/mL is having a reading of 39 IU/mL at the end of the treatment. The repeat serum AFP in two weeks was 38 IU/mL. There was no clinical or radiological evidence of disease.

Explain the course of action you would take for this patient. (25 marks)

2.

- 2.1. A 55-year-old man with T<sub>3</sub>N<sub>0</sub>M<sub>x</sub> adenocarcinoma of sigmoid colon presented to you after surgery. The histology report revealed 8 lymph nodes and there was no evidence of lympho-vascular invasion. The tumour revealed a high Micro Satellite Instability (MSI).

How would you manage this patient? (25 marks)

- 2.2. A 45-year-old woman presented with a breast lump measuring 4 cm and found to have a Ductal Carcinoma In-Situ (DCIS). She undergoes wide local excision and sentinel lymph node biopsy. Histology revealed predominantly DCIS with a focal area of micro-invasion without involvement of sentinel lymph node. Immunohistochemistry was done in the invasive component, and it was found to be ER, PR and HER-2 Neu negative.

How would you manage this patient? (25 marks)

- 2.3. A 34-year-old woman was diagnosed with low-risk Gestational Trophoblastic Disease was started on single agent methotrexate with folinic acid. Serum beta-hCG came down to 5300 IU/mL from 55000 IU/mL after cycle 1. Then, it further dropped to 590 IU/mL and 58 IU/mL after the second and third cycles, respectively. It dropped to 20 IU/mL after the fourth cycle. It remained at 21, 23, 22 IU/mL at the end of the next three cycles.

How would you manage this patient with explanation? (25 marks)

- 2.4. A 48-year-old man was diagnosed with papillary carcinoma of thyroid with extra-thyroidal extension and positive margins after total thyroidectomy. None of the removed lymph nodes were involved by the thyroid cancer. The patient was treated with 200 mCi radioactive iodine-131 (<sup>131</sup>I) treatment and the whole-body scan revealed uptake in the thyroid bed and few lower cervical lymph nodes. His serum Thyroglobulin at 3 months was 55 ng/mL, which was 255 ng/mL before the treatment. There were no anti thyroglobulin antibodies detected. The US scan neck reveals two level 4 cervical lymph nodes measuring 1 cm, suspicious for metastatic disease. FNAC of the lymph node revealed a papillary carcinoma of thyroid.

Explain further management of this patient. (25 marks)

Contd.../3-

3.

- 3.1. A 45-year-old man with T<sub>3</sub>N<sub>1</sub>M<sub>0</sub> oesophageal adenocarcinoma at 35 - 39 cm undergoes neo-adjuvant chemo-irradiation, completed without any interruption. He was planned for surgery and the repeat scan at 6 weeks revealed complete response radiologically. The reassessment Upper GI endoscopy (UGIE) revealed complete clinical response. As the surgeon was on leave for next two weeks, surgery was planned for the third week. The patient was concerned about the delay in surgery and seeks further advice from you regarding the management.

How would you advise this patient?

(25 marks)

- 3.2. A 55-year-old woman was diagnosed to have T<sub>1</sub>N<sub>0</sub>M<sub>0</sub> 2 cm well differentiated squamous cell carcinoma of oesophagus at 32 - 34 cm. He underwent endo mucosal resection of the tumour. The histology revealed a well differentiated squamous cell carcinoma with lympho-vascular invasion and positive deep resection margin.

How would you manage this patient?

(25 marks)

- 3.3. A 52-year-old man with T<sub>2</sub>N<sub>1</sub>M<sub>0</sub> esophageal adenocarcinoma at 28 - 32 cm was offered chemo-irradiation as definitive treatment in view of his medical co-morbidity. The first Oncologist offered 64.8 Gy radiation with Cisplatin and 5 FU. The second Oncologist offered 50.4 Gy radiation with Cisplatin and 5 FU.

Help the patient to choose the best option and explain the reasons for choosing that option.

(25 marks)

- 3.4. A 65-year-old woman with locally advanced lower oesophageal squamous cell carcinoma had definitive chemo-irradiation with complete radiological and clinical response. The patient was recommended to have surgery and wants your opinion.

How would you advise this patient?

(25 marks)

Contd...../4-

4. A 54-year-old male smoker presented to the emergency department with sudden onset of difficulty in breathing and found to have stridor.

4.1. What is your immediate management for this patient? (25 marks)

4.2. How will you arrive at a final diagnosis and what further investigations would you order? (25 marks)

4.3. The biopsy of a laryngeal lesion confirmed a moderately differentiated squamous cell carcinoma and CT scan showed supraglottic tumour involving epiglottis extending down to arytenoids without cervical lymph node metastasis.

4.3.1. What is the TNM stage of the disease? (05 marks)

4.3.2. What are your management options? (05 marks)

4.3.3. Briefly give your treatment approach including dose, volumes and organs at risk. (15 marks)

4.4. Two years later, he presents with local recurrence without evidence of regional or distant metastasis.

How would you manage this patient? (25 marks)