

**MEDICAL ONCOLOGY**

PAPER-I

Time: 3 hours  
Max. Marks:100

MED ONCO/J/19/17/I

**Important Instructions:**

- Attempt all questions in order.
- Each question carries 10 marks.
- Read the question carefully and answer to the point neatly and legibly.
- Do not leave any blank pages between two answers.
- Indicate the question number correctly for the answer in the margin space.
- Answer all the parts of a single question together.
- Start the answer to a question on a fresh page or leave adequate space between two answers.
- Draw table/diagrams/flowcharts wherever appropriate.

**Write short notes on:**

1. a) Next generation sequencing (NGS). 4+3+3  
b) Passenger & Driver mutations.  
c) Allele-Specific polymerase chain reaction
2. a) What are the constituent cell types of the tumour microenvironment? 3+3+4  
b) Dynamics and co-evolution of the tumour microenvironment during the carcinogenesis.  
c) Mention therapies targeting hall marks of the cancer.
3. a) Mechanisms of chemical carcinogenesis. 4+4+2  
b) Microbiota & carcinogenesis.  
c) Cancers caused by EBV.
4. a) Mechanism of radiation induced cellular damage. 4+3+3  
b) Proton beam therapy.  
c) Radiosensitizers in cancer therapy.
5. a) Immune checkpoints in a cell and their inhibitors in cancer treatment. 4+4+2  
b) Adverse effects of immune check point inhibitors and their management.  
c) Talimogene laherparepvec (T-VEC).
6. a) Indications of Genetic counseling in hereditary cancer syndromes. 3+3+4  
b) Components of Cancer Genetic counseling.  
c) Role of surgery in cancer prevention.
7. a) Biochemistry of the ubiquitin proteasome pathway. 4+6  
b) Proteasome inhibitors - mechanisms of action, indications and side effects.

**P.T.O.**

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8. a) What is a tumour biomarker? 2+3+5  
b) Potential uses of tumour biomarker tests.  
c) What are the criteria to incorporate a tumour biomarker test into clinical practice?
9. a) Anti HER-2 neu therapeutic agents in breast cancer. 4+3+3  
b) Monitoring and management of cardiotoxicity of anti- HER 2 therapy.  
c) Differences between anthracyclin induced and anti- HER-2 agents induced cardiotoxicity.
10. a) What is a biosimilar? 2+4+4  
b) Criteria used in biosimilar approval process.  
c) Advantages & disadvantages of use of biosimilar.

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