

Name :

Roll No. :

Invigilator's Signature :

CS/M.Tech(PBIR)/SEM-3/MBT-309/2012-13

2012

CANCER GENETIC

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Question No. 1 is compulsory.

1. Answer any *ten* of the following questions : $10 \times 1 = 10$

- i) What is oncogene ?
- ii) Name two tumour suppressor genes.
- iii) What is metastasis ?
- iv) What is the difference between apoptosis and necrosis ?
- v) What is the role of telomerase in tumour cells ?
- vi) What is the role of RSV virus in cancer ?
- vii) What is the difference between carcinoma & sarcoma ?

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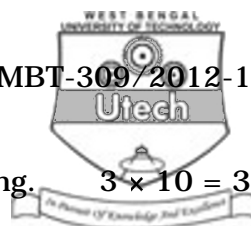


- viii) Give an example of multi-hit model of the origin of cancer.
- ix) What is reverse transcriptase ?
- x) Name two genes responsible for breast cancer.
- xi) What is Philadelphia chromosome ?
- xii) What is carcinogen ?

MODULE - I

Answer any *five* of the following. $5 \times 6 = 30$

- 2. Explain the stem cell concept of origin of cancer.
- 3. How is oncogene activated in Chronic Myelogenous Leukaemia (CML) ?
- 4. Explain the hypothesis of retroviral origin of cancer.
- 5. What is the difference between oncogene and tumour suppressor gene ? Explain with a suitable example.
- 6. What is angiogenesis ? Name the factors responsible for angiogenesis during tumour formation.
- 7. Illustrate the genetic pathways to the development of cancer with a suitable example.
- 8. Explain the JAK-STAT pathways of origin on cancer.
- 9. Name the genes responsible for the origin of five familial cancers. Explain the origin of retinoblastoma.



MODULE - II

Answer any *three* of the following.

3 × 10 = 30

10. List the important characteristics of cancer cells.
11. Illustrate & explain the kinase pathways of origin of cancer.
12. What is apoptosis ? What are the genes involved in apoptotic pathways in vertebrates and *C.elegans*. Illustrate the pathways.
13. What are the risk factors for the origin of cancer ? Write briefly on epidemiology of cancer in India.
14. Explain the cell cycle arrest and apoptotic pathways induced by a tumour suppressor gene in response to DNA damage.

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