STATEMENTS FOR BASIC LEVEL

(True of False and comment)

1. Sarcomas are benign tumors arising in epithelial glandular tissues or their derivatives.
2. Leiomyosarcoma is a benign tumor derived from striated muscle cells.
3. Retinoblastoma is a proto-oncogene that positively controls the cell cycle.
4. P53 is a proto-oncogene that negatively controls cell death.
5. Promotion is the step of carcinogenesis characterized by tumor growth.
6. BCL-2 is a tumor suppressor gene that negatively regulates cell death.
7. Beclin1 is a tumor suppressor gene that induces apoptosis and inhibits autophagy.
8. Cancer cells utilize large amount of glucose through glycolysis.
9. Epigenetic mutations play an important role in cancer development.
10. All cells within the primary cancer can give rise to metastasis in any distant organ.
11. Some chemotherapeutic agents can specifically target cancer stem cells.
12. Cancer associated fibroblasts support EMT through secretion of cytokines.
13. Cachexia is a progressive weight loss caused by chemo or radiotherapy.
14. Asbestos is a genotoxic carcinogen responsible for brain tumors.
15. An indirect-acting chemical carcinogen needs to be metabolized into an electrophilic molecule.
16. Benzo(a)pyrene is a direct carcinogen forming adducts with oncoproteins.
17. Staging allows to classify tumors according to the histologic level of differentiation.
18. X-rays cause DNA mutations via lysis of water molecules.
19. UV radiation are particulate radiation mainly responsible for lung cancers.
20. Radon is a radioactive gas that causes primarily lung cancer.
21. P53 is an oncosuppressor gene that positively controls cell death.
22. Cancer differs from benign tumor because it is invasive and metastatic.
23. Benign tumors can invade to local lymph node but not to distal organs.

24. Carcinogenesis is the consequence of a gene mutation in either ONE oncogene or ONE oncosuppressor.
25. Growth factor may act as an oncogene that positively controls cell proliferation.
26. Cachexia is a metabolic condition that can be controlled and reversed with artificial feeding and radiotherapy.
27. Sarcoma is the suffix that identifies epithelial benign tumors.

STATEMENTS FOR ADVANCED LEVEL

(True of False and comment)

1. Gain of function mutations can activate tumor suppressor genes, whereas loss of function mutations are restricted to proto-oncogenes.
2. Oncosuppressor miRNA promotes carcinogenesis by targeting the mRNA of a tumor suppressor gene.
3. Cachexia is a syndrome characterized by many metabolic alterations and it can be treated by chemotherapeutic agents.
4. TGFbeta is a cytokine secreted by cancer associated adipocytes that counteracts the Epithelial-to-Mesenchymal Transition.
5. Tumor dormancy refers to a metabolic state characterized by high consumption of glucose associated with block in the G2/M-phase of the cell cycle.
6. PTEN controls the Warburg effect by limiting the Glucose uptake.
7. OncomiRNA promotes carcinogenesis by targeting the mRNA of oncogenes.
8. Cancer associated fibroblasts participate to cancer metastatization through secretion of cytokines and also supply of metabolites.
9. BECLIN1 is an oncogene that controls autophagy-mediated cancer cell migration.
10. Epigenetic mechanisms contribute to carcinogenesis.
11. Carcinogenesis is the consequence of a gene mutation in just ONE oncogene or ONE oncosuppressor.
12. A chemical pro-carcinogen must be converted into a nucleophilic active molecule by the ‘oncogenic metabolizing pathway’ in order to bind the Phosphate groups of DNA.
13. The Warburg effect consists in the abnormal metabolism of glucose regardless of the availability of oxygen and is associated with glutamine consumption.