Write short notes on:

1. Various immune check points inhibitors and potential biomarkers to monitor their efficacy. Name 4 cancers where role of immunotherapy appears to be promising. 8+2

2. a) Enumerate the antibiotic antineoplastic agents. 2+4+4
   b) Mechanism of resistance.
   c) Side effects of these drugs.

3. Role of tumor markers in diagnosis and prognosis of solid cancers. 5+5

4. A 3 year old child has presented with right orbital mass of 3 months duration. Briefly discuss the differential diagnosis, work up plan, also briefly suggest treatment outline for each of the probable diagnosis. 4+3+3

5. a) What are the hallmarks of cancer? 5+(3+2)
   b) Role of anti angiogenic agents in cancer ovary and renal cell cancer.

6. A 62 year old gentlemen was treated with radical radiation for his T1 glottic cancer. What will be the radiation fields, dose and long term toxicity expected? Discuss the options of salvage treatment in case his disease recurs after 2 years. (2+2+4)+2

7. a) Mechanism of histone deacetylase inhibitors. 4+(3+3)
    b) Illustrate your answer with example of myelodysplastic syndrome and multiple myeloma.

8. Write principles of micro-array technology. What are the different types and its usage? 5+5

9. a) Staging, pathology and molecular biology of endometrial cancer. (3+3+2)+2
    b) Outline its impact on management.

10. a) Different types of clinical trials. 5+5
    b) Plan a clinical trial for advanced lung cancer in elderly population.

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