

Answer the following questions:

A. Give full account on: DNA-based methods for detection of meat adulteration
(١٠.٥ marks)

B. Write fully on: (١٦ marks, ٤ each)

- Entomology of the cadaver and its significance.
- Extraction as a step in the sample preparation for analysis of toxins.
- Define death, enumerate and explain early changes after death.
- Steps of PCR.

C. Complete the following sentences: (٧.٥ marks, ١.٥ each)

- In southern blot technique, the cutting of DNA using one or more(١)....., while sorting the DNA pieces by size is done by.....(٢)..... and denaturing the DNA by(٣)..... or(٤).....
- ...(٥)..... is considered as a highly accurate but time consuming DNA fingerprinting marker

D. Tabulate the differences between: (٨ marks, ٤ each)

- Postmortem staining and postmortem calorificity
- Acute and chronic toxicity as a toxicity testing

E- Give short notes on the followings (٨ marks, ٢ each)

- Gender identification using *AMYL* gene.
- What are “tattoo marks”? How are they produced? Mention their medico-legal importance.
- Conditions simulating Rigor Mortis.
- Significance of diatoms' examination.