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Course Name: MSc Toxicology, Semester-III End-term Examination (2022-23)

Paper Name: Methods of Toxicology — Paper Code: MTX-302
Time: 3 hrs — Maximum Marks: 75

1. **Briefly answer the following (10x1.5=15)**
   A. Adherent cultures should be passaged when they are in the…….. phase.
   B. Liver cirrhosis and COPD are examples of sub-chronic toxicities (T/F)
   C. Mycoplasma can be detected by enzyme immunoassay by specific antisera or monoclonal Abs or by PCR amplification of mycoplasmal RNA, write the name of the RNA.
   D. DakDak is an alternative test used to measure the effectiveness of ……
   E. Camptothecin increases the levels of SCEs called……
   F. ……..is analogue of Thymidine.
   G. The auxotrophic mutant can grow in……..
   H. COMET assay measures DNA damage at a single-cell level. (T/F)
   I. Write the name of the stage at which we visually detect SCE.
   J. Which one of the following is a possible origin of MN
      a). Acentric chromosome fragment — b). Malsegregation of chromosome
      c). Aggregation of double minute — d). All of the above

2. **Attempt any three of the following (3x5=15)**
   A. Importance of *in vitro* and *in vivo* testing of chemicals.
   B. Write about any two alternate models of toxicity testing.
   C. Concept of acute, chronic, sub-chronic toxicity testing.
   D. When do we need subculturing of cells?
   E. Basics of the toxicokinetic procedure.

3. **Write short notes on any three of the following (3x5=15)**
   A. Basic genetic concepts related to toxicity and carcinogenicity.
   B. Rodent cancer bioassay.
   C. Difference between finite and continuous cell lines.
   D. Difference between adherent and suspension culture.
   E. Daphnia

4. **Explain any three (3x5=15)**
   A. Single-cell gel electrophoresis assay
   B. Sister chromatin exchange assay
   C. Role of guinea pig in toxicity testing
   D. The systemic approach to carcinogenicity testing
   E. The different cell lines used in toxicological studies

5. What do you mean by genotoxicity testing? Explain in detail about the micronucleus assay, its types, and its application. **(15)**

   [OR]

   What is a mutagenic agent? How we can determine the activity of mutagenic agents through the AMES test? Explain.