

**B.Sc. 5<sup>th</sup> Semester (Hons.) Examination, 2021 (CBCS)**

**Subject: Zoology**

**Paper: DSE-1**

**BU**

**(DSE-T1: Animal Biotechnology)**

**Full Marks: 40**

**Time: 2 Hrs**

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

*Answer any eight questions of the following:*

**5×8=40**

1. Mention the principle, procedure and applications of DNA fingerprinting technique.
  2. Write short notes on the following:
    - i) DNA microarray
    - ii) Cystic fibrosis
  3. Compare briefly among Southern and Northern blotting techniques with their applications and limitations.
  4. Describe briefly the steps of retroviral and DNA microinjection methods for the production of cloned and transgenic animals.
  5. Mention the principle and procedure of Sanger's di-deoxy method of DNA sequencing.
  6. Explain blunt end cut and staggered end cut with diagram. What are the special features of restriction endonuclease? What do you mean by recognition sequence?
  7. Write down the steps for the construction of cDNA library. What is plaque hybridization?
  8. What is *taq* polymerase? What do you mean by RT-PCR? Write down the steps for PCR.
  9. What do you mean by knockout mice? Describe the process by which knockout mouse is produced.
  10. Explain primary and secondary cell culture. What is the difference between normal cell and transformed cell? Explain log phase for animal cell culture.
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