

**B.Sc. 5<sup>th</sup> Semester (Hons.) Examination, 2020 (CBCS)**

**Subject: Zoology**

**Paper: DSE-1**

**(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:*

$5 \times 8 = 40$

1. Define genome and characterize it in a eukaryote you have studied.
  2. Define vector and state the characteristic features of an expression vector.
  3. Discuss the process of construction of c-DNA, and state its difference from genomic DNA.
  4. State the principle, procedure and two applications of PCR.
  5. Briefly discuss Southern blotting technique and its applications. How does it differ from Northern blotting?
  6. Describe the steps of nuclear transplantation method for the production of transgenic animal.
  7. What is Knock-out mouse? State its method of construction and a documented application in the field of gene therapy.
  8. Write short notes on:
    - a) Palindromic sequence of DNA
    - b) BAC and YAC
  9. Describe briefly the chain-termination method. Why is it called so?
  10. Discuss the molecular diagnosis of genetic disease with special reference to Sickle cell anaemia.
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## (DSE-T2: Microbiology)

**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:*

$5 \times 8 = 40$

1. Briefly describe Robert Whittaker's five kingdom concept of biological classification.
  2. Differentiate between Gram-positive and Gram-negative bacteria.
  3. Write short note on beneficial effects of normal flora in human.
  4. State the mode of transmission and pathogenesis of Dengue.
  5. Describe the structure of bacterial cell wall.
  6. Name the causative agents of Polio and Typhoid. Briefly describe preventive measures of Staphylococcal food poisoning.
  7. Delineate the structural organization and properties of prions and viroids.
  8. Define selective media and enriched media with suitable example.
  9. Briefly describe the mechanisms of bacterial conjugation.
  10. Briefly illustrate the generalized and specialized transduction.
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