

- Note: 1) Question no. 1 is compulsory  
2) Attempt any 3 out of remaining 5 questions  
3) Draw neat labeled diagram wherever necessary

- Q1. (A) Explain different components of plant tissue culture media and its importance.  
(B) What is micropropagation? Explain the stages involved in micropropagation.
- Q2. (A) Explain primary tissue culture in detail.  
(B) What is animal tissue culture? Give advantages and limitation of animal tissue culture.
- Q3. (A) Define somatic embryogenesis? Explain the procedure for somatic embryogenesis.  
(B) Describe Agrobacterium mediated gene transfer in detail.
- Q4. (A) What is karyotyping? Explain G-Banding technique.  
(B) Explain layout of Animal Tissue Culture.
- Q5. (A) Explain cell morphology of cultured cells.  
(B) Explain in detail adherent and non-adherent cell.
- Q6. Write a short note on:  
i. DNA finger printing  
ii. Antibody Engineering  
iii. Totipotency  
iv. Vaccines