

Seat No. : _____

MIN-147

March-2019

B.Sc., Sem.-VI

**CC-308 : Biotechnology
(Agriculture)**

Time : 2:30 Hours]

[Max. Marks : 70

1. (A) Discuss IVF technology explaining methods for Somatic cell fusion, *in-vitro* fertilization and embryo transfer. **14**

OR

- (1) Explain approaches and importance of health management in Aquaculture. **7**
(2) Write note on development of Knock-out mice and its importance. **7**
(B) Answer any **four** in brief : **4**
(1) Give scientific name of animal cultivated in Sericulture.
(2) Give two parameters used to ascertain collection of good quality semen for insemination.
(3) Give an example of animal and characteristics added by Transgenesis.
(4) Give two ethical issues raised against animal cloning.
(5) What is Pronuclear injection ?
(6) What is meaning of Endangered species ?

2. (A) Explain plant transformation by Electroporation and Particle gun with diagrams. **14**

OR

- (1) Define 'transgenic' and explain theory behind Golden Rice variety. **7**
(2) Discuss plant gene manipulation through Chloroplast and Mitochondrial genome. **7**
(B) Answer any **four** in brief : **4**
(1) Draw diagram of *Ti-plasmid*.
(2) Define Transposons.
(3) Name trait improved by gene manipulation in Cotton and Maize.
(4) Define secondary metabolite and name any one produced by plants.
(5) Write principle of suspended plant cell culture technique.
(6) What is gene silencing ?

3. (A) Write detailed note on Bt-toxin explaining its Action, Cloning and Gene expression in plant. 14

OR

- (1) Define fermented food and discuss traditional fermented food consumed in India. 7
- (2) Write note on concept of seed bank and its importance. 7
- (B) Answer any **three** in brief : 3
- (1) What are Probiotic cultures ?
- (2) Name two microbial species used as SCP.
- (3) Name the agency approving GM crop varieties in India.
- (4) List two desirable features for manipulation in Tomato.
- (5) Name substrate for enzyme Nitrogenase.

4. (A) Explain the Structure, Genetic system and Replication of HIV. 14

OR

- (1) Explain the replication of TMV with suitable diagram. 7
- (2) Discuss structure and replication of Viroids. 7
- (B) Answer any **three** in brief : 3
- (1) Plant and Animal Viruses.
- (2) Write full name of SARS.
- (3) Name causative agents for Kuru disease.
- (4) Name the model virus that first established viral genome can also be RNA.
- (5) Write nature of genome and capsid symmetry for Polio virus.
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