

B.Sc. Sem.-6 Examination

CC - 308

Bio-Technology

July 2021

Time : 2-00 Hours]

[Max. Marks : 50

1. Attempt any three from Section-I.
 2. Section-I is compulsory.

Section - I

1. (A) Write a detailed note on commercial production of silk using sericulture. 7
 (B) Write note on Transgenic animals. 7
2. (A) Explain gene transfer in fish and its applications. 7
 (B) Illustrate gene knock-out technology in detail. 7
3. (A) Explain manipulation of Chloroplast and Mitochondrial genome and its advantages over genes transferred within nucleus. 7
 (B) Discuss plant transformation by Electroporation and particle gun methods. 7
4. (A) Write a note on Transgenic plants giving example of Golden rice. 7
 (B) Elaborate Agrobacterium mediated gene transfer in plants and its applications. 7
5. (A) What is GM food ? Write parameters to improve GM foods with examples. 7
 (B) Describe molecular action and expression of δ -endotoxin of *B. thuringiensis*. 7
6. (A) What is Probiotic ? Write a detailed note on probiotics and its applications. 7
 (B) Discuss scope for genetic improvement of oil-seed crops using biotechnology. 7
7. (A) Describe Structure, Genetic system, Replication and Pathogenesis of HIV. 7
 (B) Discuss structure of TMV with labelled diagram. 7
8. (A) Explain Structure and Pathogenesis of SARS. 7
 (B) Describe Genetic system and Pathogenesis of Rabies virus. 7

Section - II

9. Answer the following (Any eight) 08

Q-1 _____ cell was used as a source of nucleus for somatic cell nuclear transfer in dolly the sheep.

- A Cheek
- B Udder
- C Germline
- D None of the given options are correct

Q-2 Project Tiger was first started in the _____ national park.

- A Ranthambhore
- B Kaziranga
- C Jim Corbett
- D Sunderbans

Q-3 More than one ovum can be obtained from a female at a time by using_____.

- A superovulation
- B embryo splitting
- C pronuclear injection

PTO

M III-2

- D a catheter
- Q-4 _____ technique is used to remove a gene from the genome.
- A Gene knock-in
 - B Gene knock-down
 - C Gene knock-out
 - D None of the given
- Q-5 _____ is/are an example of transgenic animal(s).
- A Dolly the sheep
 - B Rosy the cow
 - C Both Dolly the sheep and Rosy the cow
 - D None of the given options
- Q-6 _____ is an example of heterologous expression of protein in milk used in treatment of emphysema.
- A Anti freeze protein
 - B Green fluorescent protein
 - C Alpha Antitrypsin-1
 - D Human Growth hormone
- Q-7 _____ organism is used in sericulture.
- A *Bombax mori*
 - B *Apis mellifera*
 - C *Gallus gallus*
 - D *Sus sucrofa*
- Q-8 Gene bank is the site of storage of _____.
- A genetic information
 - B genomic DNA
 - C gametes and embryoes
 - D only gametes
- Q-9 _____ is a parameter of semen quality.
- A Date of storage
 - B Location of storage
 - C Motility of sperm
 - D Amount of semen collected

M III-3

- Q-10 Screening for gametes for presence of virus can be done after_____.
- A artificial insemination
 - B in vitro fertilization
 - C semen collection
 - D embryo splitting
- Q-11 Intracytoplasmic sperm injection is a method of _____.
- A In vitro fertilization
 - B Artificial Insemination
 - C Production of transgenic animals
 - D none of the given options are correct
- Q-12 RNA interference process is used in the _____ technique.
- A Gene knock-in
 - B Gene knock-down
 - C Gene knock-out
 - D None of the given
- Q-13 _____ cannot be obtained directly from apiculture.
- A Beeswax
 - B Honey
 - C Royal jelly
 - D Bee anti-venom
- Q-14 _____ is widely used to create transgenic plants, animals as well as bacteria.
- A Sperm mediated gene transfer
 - B Embryonic stem cell mediated transfer
 - C Agrobacterium mediated gene transfer
 - D Electroporation
- Q-15 For pronuclear injection, _____ is preferred due to large size of pronucleus as compared to size of the gamete
- A sperm
 - B ovum
 - C both male and female gamete equally
 - D zygote
- Q16 The culturing of cells in liquid agitated medium is called:

PTO

M 111-4

- A Liquid culture
- B Agar culture
- C Suspension culture
- D Micropropagation

Q17 Hairy root cultures for secondary metabolite production are induced by transforming plant cells with

- A Virus
- B *Agrobacterium rhizogenes*
- C *Agrobacterium tumefaciens*
- D *Bacillus thuringiensis*

Q18 Name the technique which is used to enhance the life of a tomato.

- A Antisense technology
- B In vitro gene transfer
- C Ex vivo gene transfer
- D Molecular farming

Q19 Which of the following has been widely used to provide resistance against plant viruses?

- A Virus resistance genes from bacteria
- B Expression of virus coat protein genes in transgenic plants
- C Expression of anti-virus genes in vectors that transmit viruses
- D Expression of ribonuclease (RNase) genes in host plants

Q20 Which of the following dies from Ti plasmid infection?

- A Rice
- B Corn
- C Sorghum
- D All of these

