

BSc (Sem.-VI) Examination

CC 308

Biotechnology

April-2017

Time : 3 Hours]

[Max. Marks : 70

Q-1 Answer the following (any two) [14]

- A. Discuss use of transgenic animals as bioreactor for the production of important products
- B. Explain technique for collection of semen and Artificial Insemination in cattle
- C. Explain with examples, how Gene-bank helped conserving endangered species
- D. Discuss principle and applications of gene knockout technology

Q-2 Answer the following (any two) [14]

- A. Describe transformation of plant using particle gun bombardment method.
- B. Explain single cell protein and its production process.
- C. Explain development of transgenic plants with its importance.
- D. Discuss technique to produce secondary metabolites by suspended plant cell culture.

Q-3 Answer the following (any two) [14]

- A. Explain agents for biological control and advantages of using it over conventional options.
- B. Describe area for improvement of crop variety by genetic modification
- C. Discuss cloning of *B. thuringiensis* gene in various crop varieties and give its advantages
- D. Explain properties and molecular action of bacterial δ -endotoxin

Q-4 Answer the following (any two) [14]

- A. Describe genetic makeup and structure of HIV.
- B. Discuss structure and replication of SARS virus.
- C. Describe structure and pathogenesis of TMV.
- D. Write detailed note on oncogenic viruses

Q-5 Answer the following [14]

1. What is Apiculture?
 2. Write the name of four fermented foods.
 3. What is use of seed bank?
 4. Name two bacterial species used as biofertilizer
 5. Name two sources of Single Cell Protein
 6. Who approves GM crops in India?
 7. What is RNA silencing?
 8. What is improvement in 'Golden Rice' variety?
 9. Give importance of using probiotic cultures
 10. Name two popular approaches for genetic manipulation of plant.
 11. Name the causative agent of Kuru disease
 12. Draw the diagram of Rabies virus
 13. Name two viroids causing plant disease
 14. What is bovine encephalitis?
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- Q-1 Answer the following (any two) [14]
- (A) State Koch's postulates also state the exceptions.
 - (B) Discuss the toxigenicity of bacteria.
 - (C) Describe the molecular mechanism of pathogenesis.
 - (D) Define epidemiology and its relevance in controlling disease transmission
- Q-2 Answer the following (any two) [14]
- (A) Discuss the diagnostic applications of monoclonal antibodies.
 - (B) Explain the ELISA technique with suitable diagram.
 - (C) Describe the principle and application of PCR.
 - (D) 'DNA fingerprinting plays an important role in forensic science' - Justify.
- Q-3 Answer the following (any two) [14]
- (A) Discuss the therapeutic applications of recombinant vaccines.
 - (B) Enlist the therapeutic proteins and explain any two of them.
 - (C) Describe principle of enzyme replacement therapy with example.
 - (D) Define stem cell and explain its therapeutic uses
- Q-4 Answer the following (any two) [14]
- (A) Discuss the symptoms and pathogenesis of malaria.
 - (B) Describe the molecular basis of sickle-cell anemia.
 - (C) Write a note on Bioterrorism.
 - (D) Give a detailed account of emerging infections.
- Q-5 Answer the following [14]
- (1) Name the virus responsible for causing AIDS.
 - (2) Write principle of Western-blotting.
 - (3) Mutation on which chromosome causes sickle-cell disease.
 - (4) Name any two viral diseases.
 - (5) What is cystic fibrosis?
 - (6) Define HLA typing.
 - (7) Write down any two mode of transmission of infectious diseases.
 - (8) Enlist the types of hepatitis.
 - (9) What is the function of insulin in our body?
 - (10) Name two bacterial endotoxins.
 - (11) What is slime layer?
 - (12) Give two functions of EPO.
 - (13) Name the pathogen responsible for causing malaria.
 - (14) Define RIA.
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