1/103 **1104E060** Candidate's Seat No :_____

BSc (Sem.-VI) Examination

CC 307

Biotechnology

Time : 3 Hours] **April-2017** **[Max. Marks : 70**

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

(A) State Koch's postulates also state the exceptions.

(B) Discuss the toxigencity 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.

1/103 **1204E089** Candidate's Seat No :_____

BSc (Sem.-VI) Examination

CC 308

Biotechnology

Time : 3 Hours] **April-2017** **[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 to 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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1304E102

Candidate's Seat No :_____

BSc (Sem.-VI) Examination

CC 309

Biotechnology

Time : 3 Hours] **April-2017** **[Max. Marks : 70**

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

A. Explain method for screening of industrially important organisms

B. Describe criteria employed to select industrially useful organisms.

C. Discuss types of raw materials used in fermentation industry.

D. Explain inoculum development method used for bacteria and fungi.

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

A. Explain method for production of Single Cell Protein

B. Discuss production and use of *Bacillus thuringiensis* biomass.

C. Discuss species and cultivation of fungi used as Edible Mushroom

D. Show merits and demerits of using edible microorganisms

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

A. Discuss how biotin limitation lead to over-production of glutamic acid

B. Describe method for Fermentative Production of Citric acid using fungi

C. Explain over-production of amino acids by auxotrophic mutants

D. Discuss fermentative process of production of acetone-butanol

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

A. Describe secondary metabolism and commercially important products of this phase.

B. How increased antibiotic production is achieved by Strain improvement?

C. Describe fermentative production of Xanthan gum and list its commercial uses

D. Name Polyketides and discuss its biosynthetic regulation

Q-5 Answer the following [14]

1. Name two antifoam agents
2. Why is air exhaust from fermenter need to be disinfected?
3. Which organisms can be grown over hydrocarbons?
4. What for *Chaetocerous* algae are cultivated?
5. Give commercial use of yeast biomass
6. What is Amphoteracin B ?
7. Give medicinal uses of Ergot Alkaloid
8. Name any commercially important sterol class of metabolite
9. What is use of de-regulatory mutants?
10. What was contribution of Kinoshita and Nakayama?
11. What is Pasteur effect?
12. Name two bacterial species used as legume inoculant.
13. Give full name of abbreviations CSL and WSL.
14. Name two methods for sterilization of air for bioreactor.

1504E129

Candidate's Seat No :_____

BSc (Sem.-VI) Examination

CC 310

Biotechnology

April-2017

Time : 3 Hours] **[Max. Marks : 70**

Q-1 Answer the Following (Any Two) (14)

(A) Describe the general outline of waste water Treatment.

(B) Explain the treatment of liquid waste trough fixed film system.

(C) Describe the sludge treatment method for safe disposal of sludge.

(D) Describe the method for treatment of solid waste.

Q-2 Answer the Following (Any Two) (14)

(A) What is the relationship between structure and biodegradability of xenobiotic compound?

(B) What the bioremediation? Explain any two approaches for bioremediation.

(C) Explain the concept of biodeteriorationand class of materials subjected to it

(D) What approaches used for bioremediation of Air pollutants, heavy metal.

Q-3 Answer the Following (Any Two) (14)

(A) Discuss importance and technique for Microbially enhance oil recovery.

(B) Explain how biotechnology is applied in Metallurgy.

(C) Summarize the sources of biofuels explaining any one in detail.

(D) Write note on utilization of cellulose and lignin as substrate.

Q-4 Answer the Following (Any Two) (14)

(A) Discuss Risk assessment process.

(B) Describe the process of integrated pest management.

(C) Explain the biological control ofsea weeds and algal bloom.

(D) Write note on sustainability and conservation of Biodiversity.

Q-5 Answer the following (14)

1. What are Xenobiotic compounds?
2. Differentiate between smog and fog.
3. Differentiate between BOD and COD.
4. Define: Biofilm.
5. Draw labelled diagram of trickling filter.
6. What is Biomagnification?
7. What is biopiling?
8. Give the Noise pollution limit table.
9. Function of Activated sludge process.
10. Give the Four names of green house gases.
11. Give the two metal names which cause cancer?
12. Name two Ozone depleting substances.
13. What are Pyrites?
14. Define: Acid rain.