

B.Sc. Semester-VI Examination
BTI 310 : Biotechnology
Environmental Biotechnology
April-2015

Time : 3 Hours]**[Max. Marks : 70****Que: 1 Answer the following. (Any two)****(14)**

- A. Explain trickling filter with diagram.
- B. Describe Activated sludge process in detail.
- C. Discuss the treatment of Solid waste.
- D. Short note on Primary treatment of waste water.

Que: 2 Answer the following. (Any two)**(14)**

- A. Write note on Biomagnification with examples.
- B. Discuss on xenobiotic compound and its properties.
- C. Write short note on Bioremediation of air pollutants.
- D. Describe design and application of a bioreactor.

Que: 3 Answer the following. (Any two)**(14)**

- A. Explain Microbial enhanced recovery of oil.
- B. Describe process for desulfurization of coal.
- C. Discuss ethanol as a production of fuel.
- D. Describe Utilization of cellulose and lignin as a mineral management.

Que: 4 Answer the following. (Any two)**(14)**

- A. Describe Environmental Impact Assessment process.
- B. Discuss the microbial control of insect pest.
- C. Discuss on Green house effect.
- D. Write note on ozone depletion process.

Que: 5 Answer the following.**(14)**

- 1) Define: Biodeterioration.
- 2) Define: Social Impact Assessment.
- 3) Define: Zoogleal film.
- 4) Differentiate between BOD & COD.
- 5) Composition of Photochemical smog.
- 6) Examples of Primary air pollutants.
- 7) Give composition of acid rain.
- 8) Give the function of composting method.
- 9) Examples of pesticide which cause toxicity.
- 10) Properties of El Nino.
- 11) Duties of GPCB for water pollution.
- 12) What is Bioleaching?
- 13) Write function of Activation Pond in waste water treatment.
- 14) Name the monomer of lignin.

B.Sc. Semester-VI Examination
BTI 307 : Biotechnology (Integrated)
Health Biotechnology
April-2015

Time : 3 Hours]

[Max. Marks : 70

- Instructions:** 1. All questions are compulsory and carries equal marks.
2. Draw diagram wherever necessary.

Time: 3 Hours

Total Marks: 70

- Q.1 Answer any two (14)
1. Discuss Koch's postulates to explain the role of pathogen in causing disease.
 2. Explain molecular mechanism of pathogenesis.
 3. Write a note on bacterial endotoxins.
 4. Describe the four main types of infectious disease transmission and give examples of each.
- Q.2 Write a note on any two diagnostic technique. (14)
1. Radioimmunoassay.
 2. Western-blot.
 3. PCR.
 4. RFLP.
- Q.3 Answer any two (14)
1. Explain role of statins as a therapeutic protein.
 2. Explain in detail stem-cell therapy with suitable example.
 3. Write applications of monoclonals in modern therapy.
 4. Explain role of recombinant vaccines for the treatment of disease.
- Q.4 Answer any two (14)
1. Explain pathogenic characteristics of HIV.
 2. Explain causes and pathogenesis of infectious hepatitis.
 3. Discuss pathogenesis of pulmonary tuberculosis.
 4. Write a note on thalassemia.
- Que 5 Answer the following in brief. (14)
1. What is epidemiology?
 2. Define sporadic disease.
 3. What is incubation period?
 4. Define vaccine.
 5. Name any two disease diagnosed by ELISA.
 6. Define monoclonal antibodies.
 7. Write one application of molecular genetics in diagnosis of cancer.
 8. Define bioinformatics.
 9. Write full form of HGH and INF.
 10. Write use of Erythropoietin.
 11. Name two enzyme deficiencies cured by enzyme replacement therapy.
 12. What is sickle-cell anaemia?
 13. Name two microorganisms used for bioterrorism.
 14. What is SCID?

B.Sc. Semester-VI Examination
BTI 308 : Biotechnology
Agriculture Biotechnology
April-2015

Time : 3 Hours]

[Max. Marks : 70

- Q1. Answer any two of the following (14)
- (A) Explain scope for biotechnological improvements in commercial cultivation of Silk.
 - (B) Explain Gene knockout technology in detail.
 - (C) Explain principles of in vitro fertilization technique and its application
 - (D) Describe scope for developing transgenic animals for the production of milk.
- Q2. Answer any two of the following (14)
- (A) Discuss the structure and mode of action of δ -endotoxin for insect control
 - (B) Explain use of *Ti*-plasmid as vector for transformation.
 - (C) Discuss plant cell suspended cultivation technique and its use
 - (D) Explain development and importance of transgenic crop rich in β -carotene
- Q3. Answer any two of the following (14)
- (A) Explain working and importance of seed bank for plants.
 - (B) Discuss production and nutritional importance of Single Cell Protein
 - (C) Describe risk need and procedure for seeking approval for GM crops.
 - (D) Explain significance of location and level of expression of *cry* gene in GM crops.
- Q4. Answer any two of the following (14)
- (A) Describe structure of TMV.
 - (B) Draw the structure HIV and symptoms caused after infection.
 - (C) Write a detailed note on Swine flu.
 - (D) Discuss slow virus and diseases caused by this class of pathogen.
- Q5. Answer in brief (14)
- (1) Name the organism and product from Pearl-culture
 - (2) Why is existence of Asiatic lion species in under threat?
 - (3) What is GFP?
 - (4) What is electroporation?
 - (5) Which non-chromosomal plant DNA can also be engineered?
 - (6) How RNA can bring about Gene Silencing?
 - (7) Which plant tissues are suitable for expression of vaccine in GM crop?
 - (8) For what purposes, oil-seed crops are genetically manipulated?
 - (9) Name two microorganisms used as probiotics.
 - (10) Name two asymbiotic nitrogen fixing bacteria.
 - (11) Define viroids giving examples
 - (12) What kind on core nucleic acid is present in Rabies viruses?
 - (13) Name two fermented food consumed in India
 - (14) Name two insect pathogenic bacteria

B.Sc. Semester-VI Examination
BTI 309 : Biotechnology (Integrated)
Microbial Biotechnology
April-2015

Time : 3 Hours]

[Max. Marks : 70

Que-1 Answer the following questions (Any two) 14

- (A) Describe criteria for selection of industrial organisms.
- (B) Explain methods for inoculum development for fungi.
- (C) Describe Molasses, PharmaMedia and SWL as raw material for fermentation medium.
- (D) Describe methods used in strain improvement.

Que-2 Answer the following questions (Any two) 14

- (A) Describe process and recovery for fermentative production of SCP.
- (B) Explain Medium and Process of fermentative production of legume inoculants.
- (C) Explain production of edible mushroom biomass.
- (D) Describe the fermentative production of *Bacillus thuringiensis*.

Que-3 Answer the following questions (Any two) 14

- (A) Discuss the fermentative production of Vitamin B₁₂.
- (B) Explain two-stage process for the fermentative production of alcohol.
- (C) Describe over production of amino acids by physiological manipulation at limiting biotin concentration.
- (D) Discuss genetic manipulation by development of regulatory mutants.

Que-4 Answer the following questions (Any two) 14

- (A) Explain manipulation of Polyketide biosynthetic pathway.
- (B) Describe fermentative production of Xanthan gum.
- (C) Describe fermentative production of Cephalosporin.
- (D) Explain fermentative production of Ergot alkaloids.

Que-5 Answer the following questions (All are compulsory) 14

- (1) Define Auxotroph.
- (2) Define antifoam agent giving examples.
- (3) Give the Economic importance of *Chaetoceros* algae.
- (4) Define secondary metabolism.
- (5) Name two fungal cultures used for fermentation.
- (6) Give medicinal use of ergot alkaloid.
- (7) Define 'D-value'.
- (8) Give industrial uses of Xanthan gum.
- (9) How is Hydrol produced?
- (10) Name constituents of CSL.
- (11) Give names of two semi-synthetic Penicillin.
- (12) Name bacteria used in production of Acetone-butanol.
- (13) What is chemical name for Vitamin B₁₂?
- (14) Give scientific name for baker's yeast.