AT–368

B.Sc. (Part—II) Semester—IV Examination

4S : BIOTECHNOLOGY (R/V)

(Genetic Engineering and Microbial Biotechnology)

Time : Three Hours] [Maximum Marks : 80

Note :— (1) **ALL** questions are compulsory.

(2) Draw neat and labelled diagrams wherever necessary.

1. (A) Fill in the blanks : 2

(i) Negative supercoiling in DNA is introduced by _____.

(ii) Size of DNA fragment is analysed by _____ gel electrophoresis.

(iii) Transfer of DNA from one bacterial cell to other by bacteriophage is called as _____

(iv) An example of organism used for the production of alcohol _____

(B) Choose correct alternative : 2

(i) There are _____ codons for protein synthesis.

(a) 20 (b) 64

(c) 100 (d) 81

(ii) Marketed name of Human insulin under the Trade name is :

(a) Immunoglobulin (b) Leucine

(c) Humulin (d) Inulin

(iii) Nature of Interferon is _____.

(a) Protein (b) Carbohydrates

(c) Glycoprotein (d) Lipid

(iv) The source of Taq DNA polymerase is _____

(a) Thermophilus aquaticus (b) Toyponema palladium

(c) Thermus aquaticus (d) All of the above

(C) Answer in **one** sentence : 4

(i) What is conjugation ?

(ii) Define Bioleaching.

(iii) What is continuous fermentation ?

(iv) Define cosmids.

2. Explain the structure of DNA and its replication in prokaryotes. 12

OR

Explain in detail the mechanism of dark and light, DNA repair. 12

3. Explain the structure and regulation of lac operon. 12

OR

Explain translation process in prokaryotes. 12

4. Explain :

(a) PCR 4

(b) Gene library 4

(c) Southern blotting technique 4

OR

(d) Phagemids 4

(e) DNA endonucleases 4

(f) Cosmids 4

5. Explain :

(a) Interferon 4

(b) Growth hormones 4

(c) Dextran 4

OR

(d) Insulin 4

(e) Amino acids as medicine 4

(f) Recombinant vaccine. 4

6. Explain the following :

(a) Organisms involved in citric acid fermentation. 4

(b) CSTR bioreactor. 4

(c) Penicillin Recovery. 4

OR

(d) Industrial production of Alcohol. 4

(e) Amylase fermentation. 4

(f) Differentiate between batch and continuous fermentation. 4

7. Explain the following :

(a) Bioleaching with example. 4

(b) Waste water treatment. 4

(c) Biofertilizers with example. 4

OR

(d) Xenobiotic compounds. 4

(e) Microbial Bioremediation. 4

(f) Give outline of biodiesel production. 4