

The H.N.S.B.Ltd. Science College, Himatnagar  
Internal Examination September-2017

B.Sc. Semester: V  
Marks: 40

Subject: Microbiology  
Paper No. : MB : 504  
( Recombinant DNA technology)

Date: 15 /09 /2017  
Time : 2:00 to 3:30

**PART: A Answer any Five of Following.**

05

1. SDS-PAGE is used for separation of which molecule ?  
(A)Nucleic acid. (B) Proteins ( C )Carbohyrates. (D ) Lipids.
2. Which enzyme is used in the formation of PCR products ?  
(A)DNA polymerase III (B) RNA polymerase  
( C ) DNA polymarase. (D) Taq. DNA polymarase
3. Which is the first step of DNA ligase mechanism from the following ?  
(A) Adenylation of DNA ligase (B) Condensation between adjacent nucleotides ( C ) Nucleophilic attack on 5' phosphate (D ) Phosphodiaster bond formation..
4. Klenow fragment lacks which activity ?  
(A)3' -5' exonuclease (B) 5'-3' polymerization activity  
( C ) 5'-3' exonuclease activity (D ) All of above.
5. In R-M system by which process bacterial DNA gets modify ?  
(A)Phosphorylation (B) Dephosphorylation  
(C) Hydrolysis (D) Methylation
6. First biotechnology company was ?  
(A)Biogene (B) Genetech ( C ) Illumina (D) Amgen
7. Which ion is important for functioning of alkaline phosphatase ?  
(A)Ca<sup>+2</sup> (B) Fe<sup>+2</sup> (C) Zn<sup>+2</sup> (D)None of above

**PART: B Answer any Five of Following.**

05

1. Define genetic engineering.
2. Define clone.
3. Define pallindronic sequence with example.
4. Define restriction site.
5. Give the function of S<sub>1</sub> nuclease.
6. Give the name of first discovered restriction endonuclease.
7. Define plasmid.

**PART: C Answer any Three of Following.**

**06**

1. Why RE type II is most widely used other than RE type I and RE type III justify.
2. Describe R-M system with diagram.
3. Enlist the name of enzyme used in trimming back and filling in.
4. Give the properties of vector molecule required to construct recombinant DNA molecule.

**PART: D Answer any Four of Following.**

**12**

1. Explain ligation by homo polymer tailing with its advantage and disadvantage.
2. What is adaptor and what are the problems with using adaptors.
3. Explain genomic library with suitable diagram.
4. Explain TA cloning with suitable diagram.
5. What is klenow fragments and give its application.

**PART: E Answer any Two of Following.**

**12**

1. What is DNA ligase explain its mechanism with suitable diagram.
2. What is Alkaline phosphatase ? explain its types and give its application.
3. Explain C- DNA library.
4. Explain DNA polymerase enzyme.