



AH-630

Seat No. _____

B. Sc. (Sem. VI) Examination

April - 2019

Biotechnology : Paper - XII

[CC-I-12 : Genetic Engineering]

Time : 3 Hours]

[Total Marks : 70

- Instructions :**
- (1) All the sections are compulsory.
 - (2) Draw diagrams / flowcharts wherever necessary.
 - (3) Figures to the right indicate marks.

1 Do as directed :

15

- (1) pBR 322 origin is similar to origin of replication of
 - (a) Col E1 plasmid
 - (b) Ti plasmid
 - (c) Ri plasmid
 - (d) All
- (2) Which of the following is palindromic sequence?
 - (a) 5' GAATTC 3'
 - (b) 5' GGCC 3'
 - (c) 5' CTTAAG 3'
 - (d) All
- (3) _____ enzyme adds nucleotide at 3' end of RNA in template independent manner.
 - (a) Polynucleotide phosphorylase
 - (b) Ligase
 - (c) RNase H
 - (d) Reverse transcriptase

- (10) Which of the following would you choose to terminate DNA replication?
 - (a) Use of radioactive dNTP
 - (b) Use of RNA primer
 - (c) Use of dideoxy NTP
 - (d) Use of florescent dNTP
- (11) Define gene cloning.
- (12) Define conjugation.
- (13) _____ is detected by Nouthern blotting.
- (14) _____ type of restriction enzymes are most useful in rDNA technology.
- (15) Give full form of RFLP.

2 Write short notes of following : (any **five**) 25

- (1) Transformation as a DNA transfer method.
- (2) Bacteriophage lamda based vectors.
- (3) Pyro sequencing.
- (4) How primers can be synthesized for various techniques?
- (5) Genomic library construction and its use.
- (6) Detection of RNA after agarose gel electrophoresis.
- (7) Applications of PCR.

3 Answer following in detail : (any **three**) 30

- (1) Sanger's method of DNA sequencing.
- (2) Plasmid based cloning vectors.
- (3) Southern blotting.
- (4) Gene therapy.
- (5) Restriction enzymes.

- (4) Which of the following technique use PCR ?
- (a) RFLP
 - (b) RAPD
 - (c) SNP
 - (d) FISH
- (5) Generalized transduction is based upon :
- (a) Lytic cycle
 - (b) Lysogenic cycle
 - (c) Virus free DNA transfer
 - (d) Physical contact between cells
- (6) cDNA is obtained from :
- (a) RNA dependent RNA polymerase.
 - (b) RNA dependent DNA polymerase.
 - (c) DNA dependent RNA polymerase.
 - (d) Protein dependent RNA polymerase.
- (7) Which of the following is source of heat stable DNA polymerase ?
- (a) *Thermotoga maritima*.
 - (b) *Pyrococcus* sp.
 - (c) *Thermococcus litoralis*.
 - (d) All
- (8) What is function of Poly Ethel Glycol in hybridization buffer ?
- (a) Blocking agent.
 - (b) Denaturant.
 - (c) Detergent.
 - (d) Volume excluder.
- (9) Which of the following is highest capacity cloning vector ?
- (a) pYAC
 - (b) pBR 322
 - (c) pBAC
 - (d) cosmid