

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2016

(UG—CCSS)

Biotechnology

BT 6B 03—RECOMBINANT DNA TECHNOLOGY

Time : Three Hours

Maximum : 30 Weightage

I. Objective type questions. Answer *all* questions1 Which among the following is a **thermostable polymerase** ?

- (a) DNA pol 1. (b) Klenow enzyme.
(c) Reverse transcriptase. (d) ~~Vent polymerase.~~

2 The antibiotic resistance marker in **pUC** vectors is :

- (a) ~~Amp^R~~. (b) TetR.
(c) ~~Cm^R~~. (d) ~~None of these.~~

3 Which among the following is a cationic detergent ?

- (a) ~~CTAB~~. (b) Triton x 100.
(c) ~~SDS~~. (d) ~~None of the above.~~

4 **pBluscript** is a :

- (a) ~~Plasmid~~. (b) Phagemid.
(c) ~~Cosmid~~. (d) ~~Platmid~~.

5 Which among the following is a high salt buffer requiring restriction enzyme ?

- (a) ~~EcoRI~~. (b) Barn **HI**.
(c) Hind **III**. (d) ~~Pst I~~.

6 **1 OD** at A_{260} _____ μg double stranded **DNA/ML**.

- (a) 40. (b) 50.
(c) 25. (d) None of these.

Say true or false :

7 Annealing temperature depends on the GC content of the primer.

8 MgCl_2 increases the **PCR** specificity.**Turn over**

- 9 ATP is the cofactor of *E coli* DNA ligase.
- 10 Electroporation is also known as biolistics.
- 11 A_{280}/A_{260} is used for assessing DNA quality.
- 12 Phagemids have X. att sites.

(12 x $\frac{1}{4}$ = 3 weightage)

II. Short Answer type questions. Write brief notes on *all* of the following :-

- 13 Phasmids.
- 14 Bt brinjal.
- 15 Homopolymer tailing.
- 16 T4 DNA ligase.
- 17 *Vir* genes.
- 18 ddNTP's.
- 19 YAC.
- 20 FISH.
- 21 End labelling of PCR probes.

(9 x 1 = 9 weightage)

III. Short answers or paragraph questions. Answer any *five* questions.

- 22 What are the applications of transgenic animal ?
- 23 What is the principle of automated cycle DNA sequencing ?
- 24 Explain the procedure for cloning in cosmids.
- 25 What is *invitro* packaging ?
- 26 What are the applications of PCR ?
- 27 Briefly explain the alkali lysis procedure of plasmid isolation
- 28 Explain the procedure of Southern blotting and hybridisation.

(5 x 2 = 10 weightage)

IV. Essay questions .Answer any *two* questions.

- 29 Compare and contrast replacement and insertion vectors with suitable examples.
- 30 Narrate the principle and procedure of Maxam and Gilberts sequencing.
- 31 Compare and contrast co- integrate and binary vector system in *A tumefaciens*.

(2 x 4 = 8 weightage)