

C 40531

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Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2013

(CCSS)

Biotechnology

BT6 B03—RECOMBINANT DNA TECHNOLOGY

Time : Three Hours

Maximum : 30 Weightage

I. Objective Type Questions. Answer *all* questions :

1 Which among the following is a type II restriction enzyme ?

- (a) EcoK (b) EcoP.
(c) EcoRI (d) None of the above.

2 The buffer used for extracting DNA is generally :

- (a) Slightly acidic. (b) Slightly basic.
(c) pH neutral. (d) None of the above.

3 Which among the following is a phagemid ?

- (a) pEMBL (b) pUE18
(c) pBR322 (d) pKNO9

4 Which among the following is a neutral detergent ?

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

5 Stuffer region is found in :

- (a) Insertion vector. (b) Replacement vector.
(c) Both (a) and (b). (d) None of the above.

6 Which among the following is a phasmid ?

- (a) pGEM3Z (b) pBluescript
(c) pUC119 (d)

State True or False :

7 T₄ DNA ligase is capable of both blunt and cohesive and ligation.

8 RNA is more alkalilabile than DNA.

9 PBR 322 recombinants are selected by a mechanism of a complementation.

10 Phagemid can exist as both double stranded and single stranded form.

11 Virgenes are *cis* acting.

12 CaCl₂ mediated transformation is receptor mediated.

(12 x ¼ = 3 weightage)

Turn over

II. Short Answer Type Questions. Answer *all* nine questions :

- 13 Binary vector.
- 14 **M13mp** vector.
- 15 X replacement vector.
- 16 **Dideoxy** nucleotides.
- 17 Primer **dimer**.
- 18 **RT PCR**.
- 19 Sticky ends.
- 20 Yeast **episomal plasmids**.
- 21 T DNA.

(9 x 1 = 9 weightage)

III. Short answer or Paragraph Questions. Answer any *five* questions :

- 22 Briefly explain the principle of alkali denaturation procedure of **plasmid** isolation.
- 23 Explain the role of phenol and **chloroform** in nucleic acid isolation.
- 24 What is FISH ?
- 25 Explain the significance of annealing temperature in **PCR**.
- 26 Briefly explain chemical degradation procedure of DNA sequencing.
- 27 What is **biolistics** ?
- 28 What is **triparental** mating ?

(5 x 2 = 10 weightage)

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

- 29 Briefly explain features, merits and demerits of different types of restriction enzymes.
- 30 Briefly explain the steps in isolating RNA from cells, stressing on the importance of **RNAase** inhibitors.
- 31 What are **cosmids** ? Outline their merits and demerits. Briefly explain **in vitro** packaging.

(2 x 4 = 8 weightage)