

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2015

(UG-CCSS)

Core Course

Biotechnology

BT 6B 03—RECOMBINANT DNA TECHNOLOGY

Time : Three Hours

Maximum : 30 Weightage

1. Object type questions. Answer all questions :

1 Which among the following is a sticky end cutter ?

- (a) EcoRI.
- (b) Sma I.
- (c) Both (a) and (b).
- (d) None of the above.

2 The Buffer used for extracting RNA is generally.

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

3 Which among the following is a phasmid

- (a) 2 EMBL.
- (b) X. WESWB.
- (c) λgt 10.
- (d) X, ZAP.

4 Which among the following is an anionic detergent :—

- (a) SDS.
- (b) CTAB.
- (c) Triton x 100.
- (d) All of the above.

5 Which among the following is an exclusive feature of replacement vector :—

- (a) Marker.
- (b) Promoter.
- (c) Terminator.
- (d) Stuffer.

6 Which among the following is the odd one :—

- (a) T4 DNA ligase.
- (b) E.Coli DNA ligase.
- (c) Vaccinia topoisomerase II.
- (d) EcoRI.

Say True or False :

- 7 Maxam and Gilbert sequencing is a chain synthesis procedure.
- 8 RFLP is a codominant molecular marker.

Turn over

- 9 Golden Rice is **carotenoid** rich.
- 10 First cloned Buffalo is **Chairma**.
- 11 **Flavr Savr** works by **antisense** RNA technology.
- 12 OD value of one at $A_{260} = 40 \text{ ug/ml/DNA}$.

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

II. Short answer type questions. Answer all *nine* questions :

- 13 **Triparental** mating.
- 14 Binary vector.
- 15 Dolly.
- 16 Reverse **transcriptase**.
- 17 X insertion vectors.
- 18 **Phagemids**.
- 19 **Cosmids**.
- 20 a complementation.
- 21 **Virgenes**.

(9 x 1 = 9 weightage)

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

- 22 What is Western Blotting ? Outline the principle of Western Blotting ?
- 23 Briefly explain the **sanger's dideoxy** sequencing ?
- 24 Compare and contrast **pBR 322** and **pUC19** ?
- 25 What is **qRT PCR** ? What are its applications ?
- 26 What are the different types of ends produced by type II enzymes ?
- 27 What is the principle of **polymerase** chain reaction ?
- 28 Comment on molecular **pharming**.

(5 x 2 = 10 weightage)

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

- 29 Briefly explain development, features and applications of M13 **mp** vectors ? Compare them with **phagemids** ?
- 30 Briefly explain the applications of **transgenic** plants ?
- 31 What is DNA finger printing ? What are its applications ?

(2 x 4 = 8 weightage)