

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL/IN/LAY 2015

(UG—UCSS:

Core Course—Biotechnology

BT 4B 01—MICROBIAL GENETICS

Time (Three Hours

Maximum : 30 Weightage

I. Objective type questions. Answer *all* questions.

A. Choose the correct answer :

1 Which of the following is a **pyrimidine** base ?

- (a) Thiamine. (b) Thymine.
(c) Thyroxine. (d) Tyrosine.

2 The human immunodeficiency virus is :

- (a) ~~Reovirus~~. (b) Rotavirus.
(c) Corona virus. (d) Retrovirus.

3 The generation interval for lambda **phage** is :

- (a) 30 min. (b) 40 min.
(c) 60 min. (d) 75 min.

4 Polio vaccine was discovered by :

- (a) Singer. (b) Salk.
(c) Singer. (d) Baltimore.

5 **Plasmids** are generally used as vectors due to their :

- (a) Ability to withstand high temperature.
(b) Ability to multiply within the cell.
(c) Ability to get hydrolysed easily.
(d) Ability to interact with RNA.

6 A **lysogenic** cycle involves :

- (a) Early **lysis** of the cell. (b) Ultimate formation of the prophage.
(c) **Lysis** of the virus. (d) Lysis by lambdalytic protein.

Turn over

B. Match the following :-

- | | |
|-------------------|------------------------------|
| 7 Interferon | (i) Initiation. |
| 8 Bacteriophage | (ii) Replication. |
| 9 Conjugation | (iii) Reverse transcription. |
| 10 HIV | (iv) Chain elongation. |
| 11 DNA polymerase | (v) Lambda. |
| 12 UV | (vi) F-factor. |
| | (vii) Virus infection. |

(12 x $\frac{1}{4}$ = 3 v-

II. Short answer type questions. Answer all *nine* questions. Each question carries 1 weight

- | | |
|---------------------------|-----------------------|
| 13 Frame shift mutation. | 14 Depurination. |
| 15 Mobile elements. | 16 Bromouracil. |
| 17 Xeroderma pigmentosum. | 18 Nonsense mutation. |
| 19 Variola virus. | 20 Phage lambda. |
| 21 Introns. | |

(9 x 1 = 9

9)

III. Short essay or Paragraph questions. Answer any *five* questions. Each question carries 2 weightage

- 22 Functional consequences of point mutations.
- 23 Conditional mutants.
- 24 Replica plating to identify auxotrophic mutants.
- 25 Bacterial conjugation.
- 26 Phage T4.
- 27 IS elements.
- 28 Fluctuation test.

(5 x 2 = 10 We-

IV. Essay questions. Answer any *two* questions. Each question carries 4 weightage :

- 29 Life-cycle of phage lambda.
- 30 Transposable elements in eukaryotes.
- 31 Chemical mutagenesis.

(2 x 4 =