

(6 pages)

Reg. No. :

Code No. : 70159

Sub. Code : RCCB 1

CERTIFICATE COURSE IN COMPUTATIONAL
BIOLOGY EXAMINATION, APRIL 2022.

Non – Semester

MOLECULAR BIOLOGY AND GENETIC
ENGINEERING

(For those who joined in July 2012 onwards)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 1 = 10 marks)

Choose the correct answer :

1. Which form of DNA is described by Watson – Crick model
(a) B – DNA (b) Z – DNA
(c) A – DNA (d) Quadruplex DNA
2. Gene mutation occurs at the time of
(a) DNA replication (b) DNA repair
(c) RNA transcription (d) Cell division

3. Which of the following enzymes are used to join bits of DNA?
(a) DNA ligase
(b) DNA Polymerase
(c) Primase
(d) Endonuclease
4. Which of the following types of DNA Polymerase has 3' – 5' exonuclease activity?
(a) DNA Polymerase I
(b) DNA Polymerase II
(c) DNA Polymerase III
(d) None of the above
5. In PBR322, PBR stands for
(a) Plasmid bacterial recombination
(b) Plasmid bacterial replication
(c) Plasmid Boliver and Rodriguez
(d) None of the above
6. Which of the following is an RNA dependent DNA synthetase
(a) DNA Polymerase I
(b) DNA Polymerase II
(c) Reverse transcriptase
(d) None of the above

Page 2

Code No. : 70159



7. The PCR technique was developed by
(a) Kohler (b) Altman
(c) Milstein (d) Kary Mullis
8. SSCP means
(a) Single Strand Colony Polymorphism
(b) Single Strand Common Polymorphism
(c) Single Strand Cytosine Polymorphism
(d) Single Strand Conformational Polymorphism
9. Aminobenzyloxymethyl filter paper is commonly used for transfer in
(a) Western blotting
(b) Southern blotting
(c) Northern blotting
(d) Dot blotting
10. Western blotting is the technique for the detection of
(a) Specific DNA in a sample
(b) Specific RNA in a sample
(c) Specific protein in a sample
(d) None of the above

Page 3 Code No. : 70159

PART B — (5 × 6 = 30 marks)

11. (a) Write short notes on Properties of Nucleic acids.
Or
(b) What is mutation? Explain types of mutations.
12. (a) Write short notes about DNA replication.
Or
(b) Explain Splicing.
13. (a) Describe Restriction endonucleases.
Or
(b) Discuss about Plasmid.
14. (a) Write short notes on PCR based mutagenesis.
Or
(b) Explain the role of PCR in molecular diagnostics.
15. (a) Describe briefly about Northern blotting technique.
Or
(b) Give an detailed account on Southern blotting technique.

Page 4 Code No. : 70159
[P.T.O.]



PART C — (5 × 12 = 60 marks)

16. (a) Write an account on different types of DNA repair mechanism in eukaryotes.

Or

- (b) Explain triplex DNA.

17. (a) Briefly explain the mechanism of DNA polymerase.

Or

- (b) Write an essay on RNA editing with examples.

18. (a) Describe:

- (i) Plasmid,
- (ii) Phagemids.

Or

- (b) Write notes on role of enzymes in recombinant DNA technology.

19. (a) Give a detailed account on types of PCR used in molecular biology.

Or

- (b) Write an essay on proof reading enzymes.

20. (a) Write notes on RFLP and RAPD.

Or

- (b) Write an essay on next generation sequencing.
-

