

(6 pages)

Reg. No. : .....

Code No. : 1159

Sub. Code : RCCB 1

CERTIFICATE COURSE IN COMPUTATIONAL  
BIOLOGY EXAMINATION, APRIL 2023.

Non-Semester

MOLECULAR BIOLOGY AND GENETIC  
ENGINEERING

(For those who joined in July 2012 onwards)

Time : Three hours

Maximum : 100 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1. Gene mutation occurs at the time of  
(a) DNA repair (b) DNA replication  
(c) RNA transcription (d) Cell division
2. Which of the following is not ionizing radiations are  
(a) X rays (b) UV rays  
(c) Cosmic rays (d) Alpha rays

3. Which of the following is not the step of mRNA processing?

(a) 5' Capping (b) splicing of introns  
(c) Polyadenylation (d) RNA Silencing

4. Which of the following enzymes are used to join bits of DNA?

(a) DNA ligase (b) DNA Polymerase  
(c) Primase (d) Endonuclease

5. The vectors Commonly used for sequencing human genome

(a) Yeast artificial chromosome  
(b) Plasmid  
(c) CMV vectors  
(d) M 13 vectors

6. Extra chromosomal, double stranded, circular DNA molecule present in bacteria which is widely used as vector is called

(a) Phagemid (b) Cosmid  
(c) Plasmid (d) Bacterial vectors



7. SSCP means
- (a) Single Strand Colony Polymorphism
  - (b) Single Strand Common Polymorphism
  - (c) Single Strand Cytosine Polymorphism
  - (d) Single Strand Conformational Polymorphism
8. The PCR technique was developed by
- (a) Kohler                      (b) Altman
  - (c) Milstein                      (d) Kary Mullis
9. 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
10. Aminobenzyloxymethyl filter paper is commonly used for transfer in
- (a) Western blotting      (b) Southern blotting
  - (c) Northern blotting      (d) Dot blotting

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PART B — (5 × 6 = 30 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write short notes on triplex DNA.
- Or
- (b) Write short notes on properties of Nucleic acids.
12. (a) Write short notes about RNA editing.
- Or
- (b) Explain Splicing.
13. (a) Describe Restriction endonucleases.
- Or
- (b) Discuss about Plasmid.
14. (a) Write an account on RT-PCR.
- Or
- (b) Explain the role of PCR in molecular diagnostics.
15. (a) Describe briefly about Northern blotting technique.
- Or
- (b) Write notes on RAPD.

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PART C — (5 × 12 = 60 marks)

Answer ALL questions, choosing either (a) or (b)

16. (a) Explain mutation and its types.

Or

- (b) Write an account on different types of DNA repair mechanism in eukaryotes.

17. (a) Give a detailed account on RNA editing with examples.

Or

- (b) Explain:

(i) mRNA

(ii) tRNA

18. (a) Discuss the role of enzymes used in recombinant DNA technology.

Or

- (b) Describe:

(i) Cosmids

(ii) Phagemids

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19. (a) Write an account on PCR in molecular diagnostics.

Or

- (b) Write an essay about types of PCR.

20. (a) Briefly explain the next generation sequencing

Or

- (b) Describe briefly about Northern blotting technique.
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