

(6 pages)

Reg. No. :

Code No. : 7173

Sub. Code : PBOM 22

M.Sc. (CBCS) DEGREE EXAMINATION,
APRIL 2019.

Second Semester

Botany – Core

GENETICS, CELL AND MOLECULAR BIOLOGY

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Chromosomes measurements are generally taken during
(a) Interphase (b) Prophase
(c) Anaphase (d) Non-of these
2. How many hydrogen bonds form between U and A in a Watson-Crick base pair interactions?
(a) 0 (b) 1
(c) 2 (d) 2

3. Genetic changes that occur in more than 1 percent of the population.
(a) Polymorphisms
(b) Monotheism
(c) Frameshift mutation
(d) All of the above
4. The only methylated base in mammals is?
(a) 7-methyl guanine (b) Thymine
(c) Methyl adenine (d) 5-methyl cytosine
5. The only nucleoside with base to sugar C-C linkage is
(a) Thymidine (b) Pseudouridine
(c) Cytidine (d) Adenosine
6. Which of the following enzyme(s) can remove or insert supercoil twists into circular DNA?
(a) Topoisomerases (b) DNA Pol II
(c) Spliceosomes (d) Helicase
7. The RNA primer a removed from the Okazaki fragment by:
(a) DNA Pol I (b) DNA Pol II
(c) DNA Pol III (d) RNA polymerase



8. When ATP binds to the head of myosin II it promotes.

- (a) binding of myosin to a new actin subunit
- (b) pivoting of the myosin head and generation of movement
- (c) release of actin
- (d) formation of myosin filaments

9. Which out of the following is an example of post translational modification?

- (a) Splicing
- (b) Class switching
- (c) Subunit aggregation
- (d) Base modification

10. With respect to the LAC operon, if both glucose and lactose are present and glucose is low which of the following is NOT true?

- (a) High CAP
- (b) Increased uptake of lactose
- (c) Low cAMP
- (d) Increased transcription of the lac operon

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PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Explain the structure and functions of nucleus.

Or

(b) Brief about the theories of sex determination.

12. (a) Distinguish between 'σ' and 'θ' model of DNA Replication.

Or

(b) What do you mean by 'Semi conservative mode of replication'?

13. (a) Explain dissociation and re-association kinetics of DNA.

Or

(b) Short notes on cot and rot value with its significance.

14. (a) Brief notes of Transcription.

Or

(b) Details on initiation factors and translational inhibitors.

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15. (a) Explain about the Genetic recombination.

Or

- (b) Explain about the Gene Silencing.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Discuss the experimental evidence that prove DNA as genetic material.

Or

- (b) Enlist the silent features of Watson and Crick model of DNA.

17. (a) Gives a detailed account on the different DNAs.

Or

- (b) Gives a detailed account on the different RNAs.

18. (a) Define DNA Polymerases and Methylation of DNA.

Or

- (b) Define RNA Polymerases and different types of RNA pol.

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19. (a) Differentiate between transformation and transduction.

Or

- (b) Describe the DNA repair mechanisms.

20. (a) Explain the features of Genetic code and Wobble hypothesis.

Or

- (b) Describe the Britten and Davidson model on Eulearyotic gene expression.
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