D 50671 (Pages : 2) Name.....

Reg. No.....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2018

(CUCBCSS—UG)

Biotechnology

BTY 5B 07—MOLECULAR BIOLOGY

Time : Three Hours Maximum : 80 Marks

Section A

Answer any **two** *out of four questions in about* 1,500 *words.*
Each question carries 10 *marks.*

1. With suitable diagram describe the structure, composition and properties of DNA.
2. Give a detailed account on the morphology, types and structural organization of eukaryotic chromosomes.
3. Explain the process of protein synthesis in eukaryotes.
4. What is operon? Explain the working of lac operon.

(2 × 10 = 20 marks)

Section B

Answer any **seven** *out of fourteen questions in about* 750 *words.*
Each question carries 5 *marks.*

5. Explain repression and activation in ara operon.
6. Explain post translational modification of proteins.
7. Give an account on bacterial genome.
8. Give an account on various types of repeated DNA sequences found in eukaryotes.
9. 'DNA replicates via semi-conservative method'. Describe an experiment to prove this statement.
10. What are transposons ? Explain the mechanism of transposition in eukaryotes..
11. Describe site specific DNA recombination.
12. Discuss the various types of mutations occurs in DNA.
13. Give an account various types RNA polymerases.
14. Give an account on post-transcriptional modifications of mRNA.

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15. Describe the structure and functions of tRNA.

16. Explain the mechanism of termination of eukaryotic transcription.

17. Explain the mechanism of excision repair of DNA.

18. Give an account on central dogma of modern biology.

(7× 5 = 35 marks)

Section C

Answer **all** *questions in about* **300** *words.*
Each question carries **3** *marks.*

19. What is Griffith's effect ?

20. What is nucleosome ?

21. Differentiate between introns and exons.

22. Define genetic code and describe any *four* features of genetic code.

23. Differentiate between promoter and operator.

(5 × 3 = 15 marks)

Section D

Answer **all** *questions in about* **200** *words.*
Each question carries **2** *marks.*

24. What are pseudogenes ?

25. What are the properties of genetic material ?

26. What are proteasomes ?

27. What are chaperones ?

28. What is reverse transcriptase and where it is found ?

(5 × 2 = 10 marks)