

20P216

(Pages: 2)

Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2021

(CUCSS - PG)

(Regular/Supplementary/Improvement)

CC19P ZOL2 C05 - MOLECULAR BIOLOGY AND CYTOGENETICS

(Zoology)

(2019 Admission onwards)

Time: Three Hours

Maximum: 30 Weightage

I. Attempt any *four* questions.

1. Define Wobble hypothesis. What is its significance in biological systems?
2. Draw the ultrastructure of a eukaryotic ribosome. Label any 4 parts
3. What is the difference between Junk DNA and Selfish DNA?
4. Elucidate the structure of interrupted genes.
5. What is the significance of non homologous and site specific recombination?
6. How are bacterial genes mapped by interrupted mating?
7. Differentiate between SINE and LINE.

(4 × 2 = 8 Weightage)

II. Attempt any *four* questions.

8. Explain inhibition of DNA replication due to the action of Actinomycin D, aphidicolin, oxolinic acid and comermycine.
9. Discuss the different DNA repair mechanisms:
10. Justify the status of globin genes as a 'complex multigene family'.
11. Explain the structure and mechanism of bacterial transposons. How does it cause antibiotic resistance?
12. Explain any three novel therapeutic interventions for cancer control and treatment.
13. Describe with diagrams the different methods of genetic transfer in bacteria.
14. How do tumour suppressor genes suppress cancer in multicellular organisms? Explain with the example of either Rb1 or p53 gene.

(4 × 3 = 12 Weightage)

III. Attempt any *two* questions.

15. Compare and contrast the RNA transcription in prokaryotes and eukaryotes (at least 5 points each)
16. Write an essay on protein synthesis and post translational changes. How does prokaryotic and eukaryotic protein synthesis differ?

17. Write an essay describing the various types of abnormalities in chromosome number and structure.
18. Explain the regulation of gene expression in bacteria with special emphasis on tryptophan and galactose operons.

(2 × 5 = 10 Weightage)
