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18BOP06

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2022
(Second Semester)

Branch – **BOTANY**

ADVANCED MOLECULAR BIOLOGY

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1. Identify the non-fibrous protein out of the following.
   i) Carbonic anhydrase ii) Collagen
   iii) Fibrinogen iv) Keratin

2. What type of charge does a DNA molecule have?
   i) Positive charge ii) Negative charge
   iii) Neutral iv) Zero

3. Which of the following statements is not true about RNA?
   i) Lack double stranded structure ii) Thymine is present
   iii) Does not obey Chargaff's law iv) Presence of ribose sugar

4. Which of the following is first amino acid of any polypeptide chain in eukaryotes?
   i) Valine ii) Alanine
   iii) Methionine iv) Glycine

5. In trp operon the co repressor is
   i) Tryptophan ii) Lactose
   iii) Beta galactoside iv) Glucose

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6. a). Illustrate the beta pleated structure of proteins.

   Or

   b). Sketch the process of protein transport into mitochondria.

7. a). Explain the Watson and Crick model of DNA.

   Or

   b). Narrate the techniques involved in nucleosome discovery.

Cont...

8. a). What is DNA fingerprinting? Mention its applications.

Or

b). Describe the structure and function of tRNA.

9. a). Differentiate between introns and exons.

Or

b). Illustrate the process of mRNA binding to ribosomes.

10. a). Assess the necessity for gene control.

Or

b). Narrate the process of gene regulation in eukaryotes.

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11. a). Categorize proteins with suitable examples.

Or

b). Interpret the structure of proteins with suitable examples.

12. a). Analyze the experimental models of DNA replication.

Or

b). Elucidate the structure of nucleosome.

13. a). Determine the types of DNA damage and add a note on its repair mechanism.

Or

b). Analyze the process of transcription.

14. a). Assess the nature of genetic code.

Or

b). Narrate the process of polypeptide elongation.

15. a). With suitable examples, elucidate the feature of operon.

Or

b). Elaborate the process of cell signalling.

Z-Z-Z

END