Question Paper

Exam Date & Time: 28-Dec-2023 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER BSc. (BIOTECHNOLOGY) DEGREE EXAMINATION - DECEMBER 2023
SUBJECT: BBT 203 MOLECULAR BIOLOGY
(CBCS 2016 REGULATION - REPEATERS)

Marks: 70 **Duration: 180 mins.**

Answer all the questions.

Illustrate where necessary.

1A)	Define phosphodiester bond.	(1)
1B)	Write two examples for disaccharides.	(1)
1C)	Write two examples for essential amino acids.	(1)
1D)	Define transcription.	(1)
1E)	What are non-coding RNAs?	(1)
1F)	Write the functions of CTD.	(1)
1G)	Define glyosidic bond.	(1)
1H)	What are vectors?	(1)
1I)	Define euchromatin.	(1)
1J)	Give an example for DNA binding motifs.	(1)

2. **Short essay answers:**

2A)	Explain DNA mismatch repair in *E.coli*.	(5)
2B)	What is DNA replication? Explain the semiconservative mode of DNA replication.	(5)
2C)	Elaborate on chromosome packaging by nucleosome model.	(5)
2D)	How does histone acetylation and deacetylation control gene expression?	(5)
2E)	Give an account on transient changes in genome activity.	(5)
2F)	Explain alternative splicing with example.	(5)

3. **Long essay answers:**

3A)	Write an essay on: a) DNA damaging agents b) Base-excision repair mechanism.	(10)
3B)	Write a note on Ti plasmids. Explain with a neat diagram, how Ti plasmids are used in introducing genes into plants.	(10)
3C)	Elaborate on eukaryotic transcription.	(10)

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