Roll No..... Total No. of Printed Pages : 4

Code No. : B02/304

Second Semester Online Examination, May-June, 2022

M. Sc. BOTANY

Paper III

MOLECULAR BIOLOGY

Time : Three Hours] [Maximum Marks : 80

Note : *Part A and B of each question in each unit consist of 'very short answer type question' which are to be answered in one or two sentences. Part C 'Short answer type' and D 'Long answer type' of each question should be answered within the word limit mentioned.*

UNIT-I

1. (A) Define nucleotides. **2**

(B) What is rho factor ? **2**

(C) Discuss the Z form of DNA and write the differences between B DNA and Z DNA.

(word limit 200-250) **4**

OR

What is spliceosome ? Describe its role in RNA splicing ?

P.T.O.

(D) Describe the various steps of DNA replication in eukaryotes ? In your answer, explain the differences between prokaryotic and eukaryotic DNA replication ?

(word limit 400-450) **12**

OR

Explain the mechanism of transcription in prokaryotes using suitable diagrams.

UNIT-II

2. (A) Define protein sorting. **2**

(B) What do you mean by nonsense mutation. **2**

(C) Give a brief account on forward mutation.

(word limit 200-250) **4**

OR

Write brief note on Robertsonian translocation.

(D) What are indused mutations ? Describe the chemical mutagenesis that causes mutation ? *(word limit 400-450)* **12**

OR

Describe the different methods employing in side directed mutagenesis ?

UNIT-III

3. (A) What are genetic markers ? **2**

(B) What do you understand by control gene. **2**

(C) Write note on Cis-trans test.

(word limit 200-250) **4**

OR

Discuss the significance of introns ?

(D) Describe the regulation of gene expression in eukaryotes using suitable diagrams. *(word limit 400-450)* **12**

OR

Describe briefly the different types of molecuar markers available for genetic studies.

UNIT-IV

4. (A) Define the unique an drepetitive sequences of DNA. **2**

(B) What is the function of restriction enzyme in restriction mapping ? **2**

(C) Give an account on C-value paradox.

(word limit 200-250) **4**

OR

Explain the alien gene transfer for the improvement of agronomic trasit in wheat.

(D) What are restriction maps ? How can these prepared ? Discuss their utility in genetic studies. *(word limit 400-450)* **12**

OR

What is heterosis and its manifestations ? Discuss the molecular basis of heterisosis and write its applications.

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