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MCR-003-001531 Seat No. _____

B. Sc. (Sem. V) (CBCS) Examination

May / June - 2018

Molecular Biology & DNA Technology : Paper - 503

(New Course)

Faculty Code : 003

Subject Code : 001531

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 Write answers in one sentence : **20**

(1) What are Okazaki fragments?

(2) Write the two unique characteristics of DNA replication.

(3) Which enzyme does primer synthesis in prokaryotic replication ?

(4) What is proof reading function of DNA Pol 1.

(5) Name any two inhibitors of DNA replication in eukaryotes.

(6) Give the role of Rho factor in E. coli.

(7) What is GC box ?

(8) Define consensus sequence.

(9) Give full form and role of CPSF.

(10) What is Central Dogma of life ?

(11) Give the significance of Shine dalgarno sequence

(12) Write the function of aminoacyl synthetase

(13) Give the function of peptidyl transferase

(14) Define mutation.

(15) What do you understand by silent mutation?

(16) What is intercalating agent ?

(17) What is bacterial conjugation?

(18) Define cDNA library.

(19) What is MCS in molecular biology?

(20) Define transformation.

2 (A) Answer any **three** of the following questions : **2×3=6**

(1) What is the driving force for DNA synthesis ?

(2) What do you understand by central dogma of life?

(3) Give the importance of acyl linkage between tRNA and amino acid.

(4) What are YACs?

(5) What do you understand by competent cells?

(B) Answer any **three** of the following questions : **3×3=9**

(1) Write the role of cyclins and Cdks in Cell Cycle.

(2) Salient features of genetic code

(3) Write about Ames Test and its significance.

(4) Classify plasmids on the basis of their function.

(5) What are spliceosomes ?

(6) Give the components of eukaryotic ribosome.

(C) Answer any **two** of the following questions : **5×2=10**

(1) Describe the experimental evidence for the semiconservative nature of the process.

(2) Explain in detail about RNA polymerase II.

(3) Discuss negative control of lac operon.

(4) Write a detailed note on mutagens.

(5) Briefly describe the main steps of gene cloning.

3 (A) Answer any **three** of the following questions : **2×3=6**

(1) Write the reactions catalysed by reverse transcriptase.

(2) Discuss poly (A) tail and its importance.

(3) State role of different release factors in prokaryotes.

(4) Write the salient features of genetic code.

(5) How transformation is different from transduction?

(6) Draw structure of any one base analog and give its role.

(B) Answer any **three** of the following questions : **3×3=9**

(1) What do you understand by eukaryotic pre-replicative complex?

(2) How type I terminators are different from type II terminators ?

(3) Discuss post - translational modifications.

(4) What is SOS response?

(5) Write a short note on bacterial conjugation.

(6) Any one application of rDNA technology

(C) Answer any **two** of the following questions : **5×2=10**

(1) Describe the synthesis of DNA with well labeled diagram in E. coli.

(2) Discuss in detail about formation of ribosome in prokaryotic cell.

(3) With diagram, explain initiation phase in prokaryotic translation.

(4) Discuss in detail repair involving excision of base pairs with well-labeled diagrams.

(5) Write in detail about the enzymes involved in recombinant DNA technology.