বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY

Question Paper

B.Sc. Honours Examinations 2020
(Under CBCS Pattern)
Semester - V
Subject: ZOOLOGY
Paper: C11T & C11P
(Molecular Biology)

Full Marks : 60
Time : 3 Hours

Candiates are required to give their answer in their own words as far as practicable.
The figures in the margin indicate full marks.

Group - A

THEORY

Answer any ***two*** questions : 20×2=40

1. (a) Explain the role of the sliding clamp in DNA replication with suitable diagram. Describe with suitable diagrams, the regulatory mechanism of Trp Operon. 4+6=10

   (b) (i) Explain briefly the cloverleaf model of tRNA with suitable diagram.

   (ii) Differentiate between Rho-dependent and Rho-Independent Termination of Transcription. 5+5

2. (a) (i) Describe briefly the nucleotide and base excision repair mechanism of DNA.

(ii) Explain in brief the Sanger method of DNA sequencing. 5+5

(b) (i) Why DNA polymerase cnanot start DNA synthesis without free 3'-OH, but RNA polymerase can do this ? 2

(ii) Name any four proteins involved in the DNA replication in eukaryotes. 2

(iii) Differentiate between Prokaryotic and eukaryotic ribosomes. 2

(iv) What is polysome ? 2

(v) Differentiate between Northern and Southern Blotting. 2

3. (a) Write down the basic principle of PCR and its applications. 2+2

(b) What is genetic code ? Mention different properties of genetic code. 1+3

(c) Briefly describe the sequential events that take place in the initiation of translation in prokaryotes. 4

(d) Briefly describe the aminoasylation of tRNA. 4

(e) Explain the positive control of lac operon. 4

4. (a) (i) What is catabolyte repression ? 3

(ii) Explain the molecular mechanism of attenuation in trp operon. 7

(b) (i) Write down the basic principle, procedure and application of southern blotting hybridization. 6

(ii) What is wobble hypothesis ? 3

(iii) What are the different subunits of RNA polymerase holoenzyme ? 1

Group - B

PRACTICAL

Answer any ***one*** questions : 20×1=20

1. Write down the procedure of Polytene Chromosome prepration. Draw a labelled diagram of Polytene Chromosome.

2. Describe the principle and procedure of Agrose gel elctrophoresis, with suitable diagrams.

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