WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 6th Semester Examination, 2021

PHYADSE05T-PHYSIOLOGY (DSE3/4)

GENETICS AND MOLECULAR BIOLOGY

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.
All symbols are of usual significance.

Answer any *five* questions from the following   8×5 = 40

1. What is epistasis? What is meant by aneuploidy? What do you mean by polygenic trait? Explain the term "co-dominance".   2+2+2+2

2. Explain the term "DNA replication is a semi-conservative and semi-discontinuous process". List the proteins responsible for prokaryotic DNA replication. What are Okazaki fragments?   4+2+2

3. Give an account on prokaryotic promoter site. State the role of sigma factor in initiation of prokaryotic transcription. How the prokaryotic transcription process is terminates?   3+2+3

4. What is genetic code? Briefly discuss the characteristics of genetic code. What is wobble hypothesis?   2+4+2

5. What is an operon? Enumerate the events occur in lac operon during absence and presence of inducer.   2+(3+3)

6. Discuss briefly the initiation of prokaryotic translation process. State the role of EF-Tu in prokaryotic translation. What do you mean by translocation in translation process?   4+2+2

7. What is plasmid? What is non-sense mutation? Give a brief account on mutagenic agents.   2+2+4

8. Write short notes on any *two* of the following: 4+4
    (a) Pleotropism
    (b) Polymerase chain reaction
    (c) Sex determination in humans
    (d) Restriction endonucleases.

    N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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