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PG CBCS

M.Sc. Semester-IV Examination, 2022

MEDICAL LABORATORY TECHNOLOGY (MLT)

PAPER: MLT 402B

(MOLECULAR MICROBIOLOGY AND GENETICS)

Full Marks: 40 **Time: 2 Hours**

The figures in the right - hand margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A

1. Answer any <u>two</u> questions: **2×8=16**

a) Differentiate between gene and genome. What is database? Name any four nucleotides and protein databases. What is the importance of database search in bioinformatics? (2+4+2)

b) Differentiate between generalized and specialized transduction. Discuss about interrupted mating experiment. (4+4)

c) Discuss the structure of Lac operon. What makes the lac operon turn on? Discuss about frameshift mutation. (4+2+2)

d) State the replication initiation process in Escherichia coli. Illustrate primer removal process from each Okazaki fragment in eukaryotes. Name the proteins involved in replication termination process. (4+2+2)

GROUP - B

2. Answer any <u>four</u> questions: **4×4=16**

a) What does it mean by strong and weak promoter? What is pribnow box? (2+2)

b) Write the function of each initiation factors in prokaryotic translation process. (4)

c) Discuss the effects of different physical mutagen on animal cell. (4)

d) Write a note on global alignment. (4)

e) Discuss transformation process. (4)

f) State the properties of plasmid. (4)

g) What is BLAST? Write a nucleotide structure of 20 bp in FASTA format. (4)

h) Discuss Rho-independent transcription termination process. (4)

GROUP – C

3. Answer any <u>four</u> questions: **2X4 = 8**

a) What is codon bias? (2)

b) What is silent mutation? (2)

c) What is ORF? (2)

d) State the function of Single-strand binding protein in replication. (2)

e) What is tautomeric shift? (2)

f) Define R plasmid. (2)

g) Name the three stop codons in translation. (2)

h) What is attenuation in Trp operon? (2)

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