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BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – M.Sc.(BT)-2022
Course Name – Molecular Biology
Course Code - MBTC202
(Semester II)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Identify in Prokaryotes, the ribosomal binding site on mRNA is called
- | | |
|---------------------|----------------------------|
| a) Hogness sequence | b) Shine-Dalgarno sequence |
| c) Pribnow sequence | d) TATA box |
- (ii) Recall what is the function of the ω subunit of RNA polymerase?
- | | |
|----------------------------|---------------------|
| a) Sub unit association | b) Promoter binding |
| c) Initiation & elongation | d) Cation binding |
- (iii) Select Sickle cell anemia is caused
- | | |
|--|--|
| a) When valine is replaced by glutamic acid in beta polypeptide chain | b) When glutamic acid is replaced by valine in beta polypeptide chain |
| c) When glutamic acid is replaced by valine in alpha polypeptide chain | d) When valine is replaced by glutamic acid in alpha polypeptide chain |
- (iv) Peptidyl transferase
- | | |
|--------------------------|------------------------|
| a) is a 23s rRNA | b) Forms peptide bonds |
| c) Component of ribosome | d) All the three |
- (v) If the mutation has a negligible effect on the function of a gene, predict it is known as a
- | | |
|--------------------------|-------------------------|
| a) Silent mutation | b) Frame shift mutation |
| c) Substitution mutation | d) Insertion mutation |
- (vi) Predict which of the following mechanisms will remove uracil and incorporate the correct base?
- | | |
|--------------------|-------------------------------|
| a) Direct repair | b) Base excision repair |
| c) Mismatch repair | d) Nucleotide excision repair |

Group-C
(Long Answer Type Questions)

5 x 6=30

7. Cite what is difference between oncogene and tumor suppressor gene? (5)
8. Compile the TNM Staging System to describe the stages of cancer. (5)
9. Justify the process of Site specific base modification editing of RNA. (5)
10. Correlate how topoisomerase is required for nucleosome assembly using covalently closed, circular DNA (cccDNA). (5)
11. In your own words, interpret the difference between Rho (ρ)-dependent and Rho (ρ)-independent termination of transcription in prokaryotes. (5)
12. Justify any two-cancer causing agents. (5)

OR

Justify the role of mutation in cancer. (5)
