

2024/FYUG/ODD/SEM/
BTCSEC-201T/246

FYUG Odd Semester Exam., 2024

BIOTECHNOLOGY

(3rd Semester)

Course No. : BTCSEC-201T

(Molecular Biology)

Full Marks : 50

Pass Marks : 20

Time : 2 hours

The figures in the margin indicate full marks
for the questions

UNIT—I

1. Answer any three from the following : 1×3=3

- (a) What is primer?
- (b) What is the function of DNA helicase?
- (c) What is the function of single-stranded binding protein?
- (d) Define Okazaki fragments.

2. DNA replication is semi-conservative in nature. Explain. 2

OR

3. Write a short note on DNA polymerases. 2

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(Turn Over)

(2)

4. Describe the process of eukaryotic DNA replication with proper diagram. 5

OR

5. What is rolling circle replication? Describe the process of rolling circle replication. 1+4=5

UNIT—II

6. Answer any three from the following : 1×3=3

- (a) Define mutation.
- (b) What is mismatch repair?
- (c) What is deamination?
- (d) Define depurination.

7. What is photoreactivation? 2

OR

8. What is non-homologous end joining? 2

9. Give an account of DNA damage. 5

OR

10. Describe the process of excision repair. 5

UNIT—III

11. Answer any three from the following : 1×3=3

- (a) What is transfer RNA?
- (b) What is ribosomal RNA?

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(Continued)

(3)

- (c) What is the function of RNA polymerase?
(d) What is TATA box?

12. Describe the role of sigma factor. 2

OR

13. What is hn-RNA? 2

14. Describe the process of transcription in eukaryotes. 5

OR

15. Write short notes on the following : $2\frac{1}{2}+2\frac{1}{2}=5$
(a) Promoters
(b) Enhancers

UNIT—IV

16. Answer any three from the following : $1 \times 3 = 3$
(a) What is exon?
(b) What is intron?
(c) Define spliceosome.
(d) What is splice site?

17. What is polyadenylation? 2

OR

18. Write a note on t-RNA splicing. 2

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(Turn Over)

(4)

19. Describe briefly the process of 5' cap formation. 5

OR

20. Write a note on prokaryotic r-RNA splicing. 5

UNIT—V

21. Answer any three from the following : $1 \times 3 = 3$

- (a) What is genetic code?
(b) What are stop codons?
(c) What is translation?
(d) Write down the central dogma of molecular biology.

22. Describe briefly the mechanism of initiation of translation. 2

OR

23. Write a short note on trp operon. 2

24. What is operon? Write a note on lac operon. $1+4=5$

OR

25. Describe the process of post-translational modifications of protein. 5

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