

**D 50836**

**(Pages : 3)**

**Name**

**Reg. No.....**

**FIFTH SEMESTER B.Sc. DEGREE EXAMINATION  
NOVEMBER 2013**

(UG – CCSS)

Biotechnology [Core Course]

BT 5B 01— CELL AND MOLECULAR BIOLOGY

Time : Three Hours

Maximum : 30 Weightage

I. Objective Type Questions. Answer all *twelve* questions :

Choose the correct answer :

1. What is the transforming principle in Griffith's experiment?

- (a) DNA. (b) RNA.  
(c) Capsular proteins. (d) Capsular polysaccharides.

2. Which among the following correctly depicts central dogma?

- (a) mRNA → DNA → protein. (b) Protein → DNA → mRNA.  
(c) DNA → mRNA → protein. **(d)** mRNA → protein → DNA.

3. Prokaryotic ribosomes are :

- (a) 60S. (b) 70S.  
(c) 80S. (d) 28S.

4. CAM plants have a :

- (a) Modified C<sub>3</sub> pathway. (b) Modified C<sub>4</sub> pathway.  
(c) Both C<sub>3</sub> and C<sub>4</sub> pathways. (d) None of the above.

5. Okasaki fragments are a proof of :

- (a) Discontinuous replication.  
(b) Directional stipulation of DNA replication.  
(c) Both (a) and (b).  
(d) None of the above.

6. Operon concept was put forward by :

- (a) Jacob and Monad. (b) Hershey and chase.  
(c) McArthur and McLeod. (d) None of the above.

**Turn over**

7. DNA gyrase catalyse :

- (a) Catenation. (b) Decatenation.  
(c) Both (a) and (b). (d) None of the above.

8. Which among the following is true :

- (a) DNA replication is conservative.  
(b) DNA replication is continuous.  
(c) DNA replication is primer dependent.  
(d) All of the above.

Answer the following :

9. Non-coding regions of mRNA is called .  
10. Transposable elements found in Drosophila.  
11. Lac 1 gene codes for which protein ?  
12. Enzyme involved in supercoiling of DNA.

(12 x  $\frac{1}{4}$  = 3 weightage)

II. Short Answer Type Questions. Answer all *nine* questions :

13. Cistron.  
14. Operon.  
15. Sosepair.  
16. Solenoid model.  
17. Retroposons.  
18. Hogness box.  
19. RNA splicing.  
20. E.coli RNA polymerase holoenzyme.  
21. Endosymbiosis.

(9 x 1 = 9 weightage)

III. Short Essay or Paragraph Questions. Answer any *five* questions :

22. Narrate an experiment, establish the status of DNA as genetic material.  
23. How does Khorana elucidated the genetic code ?  
24. What are the post translational modification of proteins ?  
25. Briefly explain the enzymology of DNA replication.

26. Briefly explain the organization of eukaryotic chromosomes.
27. What are the different types of transposable elements?
28. Briefly explain the organisation of mitochondria.

(5 x 2 = 10 weightage)

IV. Essay questions. Answer any *two* questions :

29. Briefly explain RNA splicing.
30. Compare and contrast eukaryotic and prokaryotic transcription.
31. Explain in detail the carbon assimilation of C<sub>3</sub>, C<sub>4</sub> and CAM plants.

(2 x 4 = 8 weightage)