

**BV (5)/MLMDT-5.1/18 (MC)**

**2018**

**MEDICAL LABORATORY AND MOLECULAR  
DIAGNOSTIC TECHNOLOGY**

**QP : Molecular Diagnostic Technician**

**Paper : S-5.1**

**( Molecular Biology and r-DNA Technology )**

**Full Marks : 40**

**Time : 2 hours**

*The figures in the margin indicate full marks  
for the questions*

**1. Fill in the blanks :**

**1×5=5**

(a) \_\_\_\_\_ is a small, circular, extra-chromosomal double-stranded DNA molecule of bacteria.

(b) \_\_\_\_\_ enzyme joins the Okazaki fragments together.

(c) An mRNA bearing multiple ribosomes is known as \_\_\_\_\_.

(d) In a DNA double helix the bases are held together by \_\_\_\_\_ hydrogen bonds.

(e) Southern blots are used to study \_\_\_\_\_.

BA (25) TCM-5.1 (MC)

2. Write short notes on any five of the following : 2x5=10

- (a) Frameshift mutation
- (b) Histone protein
- (c) RNA polymerase
- (d) Replication fork
- (e) RNA editing
- (f) Promoter sequence
- (g) Topoisomerase

3. Answer any three of the following questions :

- (a) Mention the limitations and application of PCR. 5x3=15
- (b) What is Wobble hypothesis? What is the importance of Wobble and degeneracy?
- (c) What is the role of transfer RNA in protein synthesis? How does it work with its unique structure?
- (d) Write a note on mutation.
- (e) Describe the lac operon of bacterium *E. coli*.

( 3 )

4. Answer any *one* of the following questions : 10

(a) Write a note on methodology and applications of DNA fingerprinting.

(b) Describe how does the synthesis of RNA take place in the process of transcription.

(c) Write an essay on C-DNA library preparation.

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