



**MAJ-003-038501**

Seat No. \_\_\_\_\_

**B. Voc. (MLMDT) (Sem. V) (CBCS) Examination**

**October / November – 2016**

**MLMDT-5.1 : Molecular Biology & r-DNA Technology**

**Faculty Code : 003**

**Subject Code : 038501**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- Instructions :**
- (1) All questions are compulsory.
  - (2) Draw neat diagram wherever is required.
  - (3) Figures on right indicate marks.

**1 Answer the following : 20**

- (1) Define : Nucleosome.
- (2) What is RNA editing?
- (3) What is the role of RNA primer in DNA replication?
- (4) What is an Operon?
- (5) Define : Mutation.
- (6) What is the role of sigma factor during gene expression ?
- (7) The product of eukaryotic transcription is known as \_\_\_\_\_.
- (8) What is an insertion element?
- (9) rDNA technology is proposed by \_\_\_\_\_.
- (10) What is the use of ddNTPs in molecular biology?
- (11) Define : RAPD
- (12) What is Molecular pharming?
- (13) Termination codons UAA, UAG and UGA are also known as \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ respectively.
- (14) Which unusual bases are found in t RNA?
- (15) \_\_\_\_\_ confers stability to mRNA.
- (16) Alternate mode of gene regulation in trp - operon is called \_\_\_\_\_.

- (17) What is metagenomics?
- (18) What is strong termination in transcription?
- (19) Define : Splicing.
- (20) What is cDNA?

- 2** (a) Answer specifically : (any **three**) **6**
- (1) What is wobble hypothesis?
  - (2) Write in brief on role of DNA ligase in replication.
  - (3) Enlist various characteristics of an ideal vector used in rDNA technology.
  - (4) What is Real Time PCR?
  - (5) What is suppression?
  - (6) What is Recombination?
- (b) Answer specifically : (any **three**) **9**
- (1) Write in brief on cDNA synthesis.
  - (2) Write in brief on Maxam-Gilbert method.
  - (3) Describe the role of Telomerases in DNA replication.
  - (4) Write a note on group — I and group — II introns.
  - (5) How primer designing is crucial to PCR?
  - (6) What is transposon? How it is important in biological functions?
- (c) Write short notes : (any **two**) **10**
- (1) Discuss the salient features of Genetic codes.
  - (2) Write a note on replication fork.
  - (3) Write a note on Gene therapy.
  - (4) Write a note on microcycle of protein synthesis.
  - (5) Discuss classification of mutations with suitable examples.

- 3** (a) Answer specifically : (any **three**) **6**
- (1) Write in brief on RFLP.
  - (2) Write in brief on Pyrosequencing.
  - (3) What is anchored PCR?
  - (4) Write the function of 5' capping in mRNA?
  - (5) Write two differences in prokaryotic and eukaryotic translation.
  - (6) What is the role of molecular chaperons?
- (b) Answer specifically : (any **three**) **9**
- (1) Write a note on Restriction Endonuclease.
  - (2) What is Mismatch repair?
  - (3) How molecular diagnostics is helpful in diagnosis?
  - (4) Write in brief on Rolling circle mechanism of replication.
  - (5) Write in brief on DGGE and AFLP.
  - (6) Write in brief on post transcriptional changes carried out in RNA.
- (c) Write short notes : (any **two**) **10**
- (1) Discuss in detail mechanism of PCR?
  - (2) Discuss in detail commonly found post translational modifications found in proteins.
  - (3) Write in detail on genetic regulation of lactose metabolism.
  - (4) Discuss in detail DNA polymerase found in Prokaryotes. Write the chemical mechanism of nucleotide polymerization by DNA polymerase during replication?
  - (5) Write an essay on steps involved in rDNA technology.
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