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**061**

**Ph.D. Course Work EXAMINATION,**

**May 2019**

(BT)

BT902

ADVANCES IN MICROBIAL BIO-  
TECHNOLOGY

*Time : 3 Hours]*

*[Maximum Marks : 100*

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Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

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**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

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**P.T.O.**

## Unit I

1. Explain the following : **4×5=20**
  - (a) Oxidative stress
  - (b) Molecular Evolution
  - (c) Post-transcriptional modifications
  - (d) Attenuation
2. Describe the organization of a prokaryotic operon. With the help of *lac*, *trp* and *ara* operons, elaborately explain the phenomenon of positive and negative regulation of gene expression in prokaryotes. **20**
3. Discuss the significance of the following in molecular mapping of genomes : **4×5=20**
  - (a) RELP and RAPD
  - (b) Restriction Mapping
  - (c) STS Mapping
  - (d) Linkage Mapping

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## Unit II

4. Give a detailed descriptive account of the conventional and molecular methods of studying microbial taxonomy and diversity. **20**
5. Discuss in detail the various DNA-based techniques involved in diagnostic microbiology. **20**

## Unit III

6. Discuss the role of microorganisms in industrial-scale production of antibiotics and pharmaceutical products. **20**
7. With the help of some recent examples, shed light on the various products of non-microbial origin which have been produced by genetically engineered microorganisms. **20**
8. Write notes on the following : **2×10=20**
  - (a) Single cell proteins
  - (b) Biofuels

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**40**