

## M.Phil. Science Examination

## Paper-III : Life Science

May-2017

Time : 3 Hours]

[Max. Marks : 70

**Instructions:** All questions carry equal marks  
 All questions are compulsory.  
 Illustrate your answers with neat diagrams wherever necessary

1. [14]  
 (A) Explain Ligand-receptor interactions and discuss its molecular pathways.  
OR  
 (A) Explain Oxidative stress and describe role of Antioxidants in Cancer.  
 (B) Write a note on: Drug Discovery  
OR  
 (B) Discuss types of G-Proteins and their role. [14]
2. [14]  
 (A) Describe basics of Genetic Engineering.  
OR  
 (A) Write notes on DNA isolation, DNA amplification and its applications.  
 (B) Explain Recombinant DNA technology.  
OR  
 (B) Write a note on: Human Genome Project [14]
3. [14]  
 (A) Explain Microbial fermentation.  
OR  
 (A) What are Bio-fertilizers? Explain their usefulness.  
 (B) Write a note: Biodegradation  
OR  
 (B) Describe role of various Viruses in Cancer. [14]
4. [14]  
 (A) Describe Petroleum Hydrocarbon toxicity.  
OR  
 (A) Write a note on Cancer Stem Cell markers.  
 (B) Describe Immune surveillance in Cancer.  
OR  
 (B) Explain Aerobic Degradation of Hydrocarbons by Micro-organisms. [14]
5. [14]  
 Answer **any two** of the followings:  
 (A) Give an overview of identification of Micro-organisms from oil contaminated soil.  
 (B) Write a note on FT-IR Spectroscopy.  
 (C) Write a note on Two Dimensional Electrophoresis (2DE).  
 (D) Describe various methods used for detection of Circulating Tumor Cells (CTCs).  
 (E) Discuss advantages and limitations of Liquid Biopsy in cancer.