

## **General Microbiology 3(2-1)**

### **Theory**

Microbiology: introduction, historical background, branches. Significance of microorganisms in food, water and environment. Microorganisms: cell structure, prokaryotes, eukaryotes. Characteristics of microorganisms: bacteria, yeasts, moulds, viruses. Growth requirements: cultural, physical, chemical, macro- and micro-nutrients. Culture media: types, applications. Microbial metabolism. Bacterial multiplication: growth curve, continuous culture. Microbial genetics: conjugation, transduction, transformation.

### **Practical**

Safety in microbiological laboratory. Basic functions and handling of laboratory equipments. Use of microscope. Sterilization and disinfection of glassware. Preparation of culture media. Staining of microorganisms and their structures. Bacterial cultivation, growth measurement. Characteristics of bacterial colonies. Bacterial and fungal morphology. Micrometry.

### **Books Recommended**

1. Tortora, G.J., Funke, B.R. and Case, C.L. 2009. Microbiology: an introduction. The Benjamin/Cummings Pub. Co, Redwood City, California, USA.
2. Frazier, W.C. and Westhoff, D.C. 2008. Food microbiology. McGraw Hill Book Co, New York, USA.
3. Awan, J.A. and Rahman, S.U. 2005. Microbiology manual. Unitech Communications, Faisalabad, Pakistan.
4. Banwart, G.J. 2004. Basic food microbiology, 2nd ed. CBS Publishers and Distributors, New Delhi, India.

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