

CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

Semester 2 Examinations 2008/09

Module Title: Fundamentals of Microbiology II

Module Code: **BIOM6006**

School: Science

Programme Title: Bachelor of Science in Applied Biosciences – Stage 2

Programme Code: SBIOS_7_Y2

External Examiner(s): Dr Siobhán O' Sullivan

Internal Examiner(s): Dr. Don Faller

Instructions: Answer **Question 1** and **2** other questions

Duration: 2 hours

Sitting: Summer 2009

Requirements for this examination: None

Note to Candidates: Please check the Programme Title and the Module Title to ensure that you have received the correct examination paper.
If in doubt please contact an Invigilator.

1. Write short notes on **15** of the following:
 1. Describe the ecological importance of bacteroids.
 2. Illustrate the reproductive strategy of the α protobacterium *Caulobacter*.
 3. Identify significant beneficial or detrimental effects of the genera *Clostridium*, *Bacillus*, *Listeria* and *Lactobacillus*.
 4. List **four** significant roles played by methanogens in the environment.
 5. List **three** characteristics shared by all protozoa.
 6. Illustrate the trophozoite and cyst cycle in protozoa and suggest why cyst production is a common feature of parasitic intestinal protozoa and not parasitic blood borne protozoa.
 7. List **five** ways in which fungi are beneficial.
 8. Differentiate between a prion and a viroid.
 9. List the stages in viral synthesis mentioning the role of early and late mRNA synthesis.
 10. Describe the significance of lysogenic conversion in *Corynebacterium* and *Streptococci*.
 11. List the **seven** mechanisms of classification of viruses used in the Baltimore classification system. Name a virus in each group.
 12. Define *spontaneous derepression*.
 13. Discuss the important role of bacteria in nitrogen fixation and nitrification.
 14. Identify **six** basic shapes of prokaryotic cells.
 15. Compare and contrast **two** kinds of extremophiles.
 16. List **six** common features of viruses.
 17. List **three** features of *Archae* that distinguish them from bacteria.
 18. Illustrate the different forms of RNA virus replication.

2. *Phylum Proteobacteria* constitutes the largest and most diverse group of bacteria- discuss this statement under the headings of classes, reproductive strategies, habitat, metabolism, shape and distinguishing features.
3. **Illustrate** and **discuss** the lytic and lysogenic stages of bacteria. Compare and contrast lysogeny in bacteria to latency in animal viruses.
4. Discuss the few methods used to culture viruses in a laboratory and outline the difficulties and challenges of doing so.