

OLLSCOIL NA hÉIREANN, GAILLIMH**SEMESTER II EXAMINATIONS 2000****3rd year Environmental Science B.Sc.****Environmental Microbiology****EXTERN EXAMINER: Professor B. Wood****INTERN EXAMINER: Professor E. Colleran****TIME ALLOWED: 2 HOURS****ANSWER ANY THREE QUESTIONS**

(Indicate clearly the questions answered on the first page of your answer book)

- Q1** Describe the process of bacterial anoxygenic photosynthesis and discuss its environmental significance.
- Q2** Describe how chemolithotrophs obtain energy and reducing power by growth on inorganic compounds, such as H_2 , H_2S etc.
- Q3** Critically discuss the validity of using *E. coli* as an indicator organism of faecal contamination of surface and ground waters. In your answer, comment on the current *E. coli* standards applied to potable, shellfish production and recreational waters.
- Q4** Describe the mutualistic associations which occur within the animal rumen and in the nodules of N_2 -fixing plants.
- Q5** Describe the operation of the global sulphur cycle, highlighting the roles played by microorganisms and the positive and negative potential environmental impacts arising from their involvement.
- Q6** Write an essay on the microbiology of marine waterbodies and their underlying sediments.