



NUI Galway
OÉ Gaillimh

SPRING Examinations 2009 / 2010

Exam Code(s)	3BY1, 3BY2
Exam(s)	B.Sc. Degree (Biotechnology)
Module Code(s)	MI312
Module(s)	Microbiology
Paper No.	No. 1
External Examiner(s)	Dr. John P. Quinn
Internal Examiner(s)	Prof. Vincent O'Flaherty Dr. Thomas Barry *Dr. Maria Tuohy

Instructions

Answer 5 Questions

Please indicate clearly the numbers of the questions answered on the first page of your Answer Book

Duration	3 Hours
No. of Pages	1
Department(s)	Microbiology

**Co-ordinator
Requirements**

MCQ Release to Library: Yes No

- Q1.** Write an essay on achieving and maintaining asepsis in bioprocessors.
- Q2.** “The simple chemostat is a powerful tool for research and development, but a poor system for industrial bioprocesses”. Discuss.
- Q3.** Give a detailed description, with examples, of how viral infection can lead to the development of certain human cancers.
- Q4.** “Microbiology plays an important role in the production of alcoholic beverages”. Discuss this statement with reference to either beer or wine production. In your answer discuss the key biochemical steps involved in ethanol production.
- Q5.** “Food-borne intoxications can be caused either by bacteria or fungi”. Discuss this statement with reference to one bacterial agent and one fungal agent.
- Q6.** Describe the structure of antibodies, including those of various antibody classes, and discuss their function in immunity.
- Q7.** Write an essay on agglutination assays, passive haemagglutination and haemagglutination inhibition tests. Discuss their performance and applications, and use suitable diagrams to illustrate these techniques.
- Q8.** “Water can act as a vector for disease-causing microorganisms”. Discuss.



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Autumn Examinations 2009 / 2010

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Paper No.	No. 1
External Examiner(s)	Dr. John P. Quinn
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**Co-ordinator
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- Q1.** Write an essay entitled “The microbiology of brewing”.
- Q2.** With reference to their role as agents of food-borne disease write short notes on **two** of the following:
- a) *Campylobacter jejuni*
 - b) *Listeria monocytogenes*
 - c) *Clostridium botulinum*
- Q3.** Write notes on **three** of the following:
- a) The use of constitutive mutants in industrial fermentations
 - b) Properties of an ideal industrial microorganism
 - c) Carbon sources for industrial media
 - d) Control of foam in bioprocessors
 - e) Inoculum development for industrial fermentations
- Q4.** Compare and contrast the use of absolute and depth filters for the sterilization of heat-labile media.
- Q5.** “Water can act as a vector for disease-causing microorganisms”. Discuss.
- Q6.** Describe the roles played by phagocytosis and inflammation in non-specific immunity as a defence against microbes.
- Q7.** Discuss the characteristics, properties and production of monoclonal antibodies.
- Q8.** Write an essay on “Viruses and Human Cancer”.