

NATIONAL UNIVERSITY OF IRELAND, GALWAY
Ollscoil na hÉireann, Gaillimh

SEMESTER II EXAMINATIONS, 1999-2000

BIOCHEMISTRY BI315 (Unit value: 2)

External Examiner: Professor N.C. Price

Time allowed: *Three* hours

Answer *five* questions

1. Discuss the role of tumour suppressor genes in the development of human cancer, with particular reference to the structure and function of the *p53* gene product.
2. Using diagrams, outline the biosynthesis of cholesterol and state clearly how the isoprenes are important in this process.
3. Describe the value of uncouplers in the study of the mechanism of oxidative phosphorylation.
4. Give a detailed account of the complement system, with reference to its biological functions.
5. Write an essay on the molecular basis of sickle cell anaemia.
6. Define the kinetic constants V_{\max} , K_m , K_s , K_i and k_{cat} . Explain two methods by which K_i can be determined.
7. Write an essay on the signalling function of the G-proteins in the endocrine system and state clearly how they are controlled and regulated.
8. Compare the pathway for biosynthesis of methionine with pathways for the synthesis of other amino acids.