GX 1822

OLLSCOIL NA hÉIREANN
COLÁISTE NA hOLLSCOILLE, GAILLIMH

SUMMER EXAMINATION, 2000

M.Sc. NEUROPHARMACOLOGY

NEUROPHARMACOLOGY II (PM 502)

Dr. J.M. O'Donnell
Dr. J.P. Kelly
Professor I. Campbell

Time allowed: **THREE** hours

Please attempt **FIVE** questions, answer **at least TWO** questions from each Section. Students are requested to use separate answer books for each Section.

SECTION A

1. Describe how drugs interact with receptors and show how a log dose-response (LDR) graph is derived. Discuss the use of LDR graphs in studying agonist, partial agonist and antagonist drug actions.

2. Summarise in graphical form the second messenger systems involved in transduction of neurotransmitter signalling in the CNS and discuss their pharmacological significance.

3. Discuss the methods by which the relationship between chemical structure and biological activity may be studied and the importance of structure activity relations (SAR) for the design of new centrally-acting drugs.

4. Give an account of the possible ways in which a drug may be distributed in the body following oral administration. Explain the meaning of the terms: *bioavailability, compartment, half-life, first-order kinetics, first-pass metabolism.* How is the bioavailability of an oral drug measured and expressed?

SECTION B

5. Briefly describe the various *in vivo* toxicological tests that are required in the drug development process.

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6. Describe, with examples, the pharmacokinetic parameters that can be affected by the concomitant administration of certain drugs.

7. Critically assess the various phases associated with the clinical evaluation of centrally-acting drugs.

8. Write an essay on experimental design with particular emphasis on laboratory-based neuropharmacological studies.