

The University of Melbourne

Semester Two 2002

Department: Anatomy and Cell Biology
Subject Number: 516-305
Subject Title: Structure and Function of the Brain

Exam Duration: 2 hours

Reading Time: 15 minutes

This paper has 2 pages

Common content exam(s): 516-208 Structure and Function of the Brain (Optometry)
511-225 Oral Health Sciences 2B Neuroscience (Dental)
512-975 Structure and Function of the Brain

Authorized materials:

None allowed

Instructions to Invigilators:

Script books: 1 x 14 page
Exam paper may be removed from the exam room

Instructions to Students:

ALL questions should be attempted.
ALL 6 questions have equal value.
QUESTION 4: answer part A **OR** B
QUESTION 6: answer parts A **AND** B
DIAGRAMS should be used wherever possible.

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**The University of Melbourne
Semester 2 Assessment, 2002**

Department of Anatomy and Cell Biology

Subject number: **516-305**

Subject Title: **Structure and Function of the Brain**

Question 1

A normal healthy young man can distinguish a sound with a frequency of 1 kHz from a sound with a frequency of 1010 Hz. Explain the neural mechanisms that are the basis of this discrimination.

(20 minutes)

Question 2

Consider two objects. One has a deep (spectral) blue colour and the other has a pale yellow colour. Explain the neural mechanisms that enable a human observer to determine the colours of the two objects.

(20 minutes)

Question 3

What role do the basal ganglia and cerebellum play in the motor control hierarchy?

(20 minutes)

Question 4

Answer part A **OR** B

A) In most individuals language is represented on one side of the brain. Discuss the evidence for this and with the aid of diagrams describe the regions of the brain involved in language processing and speech.

(20 minutes)

OR

B) Discuss current views on the biological basis of schizophrenia.

(20 minutes)

Question 5

Describe the major events that occur during the development of the central nervous system.

(20 minutes)

Question 6

Answer **BOTH** parts A **AND** B

A) Neurons are cells specialised for signalling to target cells, such as skeletal muscle cells or other neurons, at specialised structures called synapses. Describe a synapse and indicate how the various components present act together to pass a signal from a neuron to a target cell.

(10 minutes)

AND

B) With the aid of diagrams describe the production, flow, removal and function of cerebrospinal fluid.

(10 minutes)

END of EXAM