

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

APPLIED PHYSICS DEPARTMENT

SRA2206- IMAGING OF THE NEUROENDOCRINE SYSTEM I

BSC HONOURS IN RADIOGRAPHY- PART II

MAY 2013

DURATION: 3HOURS

ANSWER ALL PARTS OF QUESTION 1 IN SECTION A AND ANY THREE QUESTIONS FROM SECTION B. SECTION A CARRIES 40 MARKS AND SECTION B 60 MARKS.

SECTION A

1. (a) Identify the structures labeled 1-12 in figure 1 below: [6]

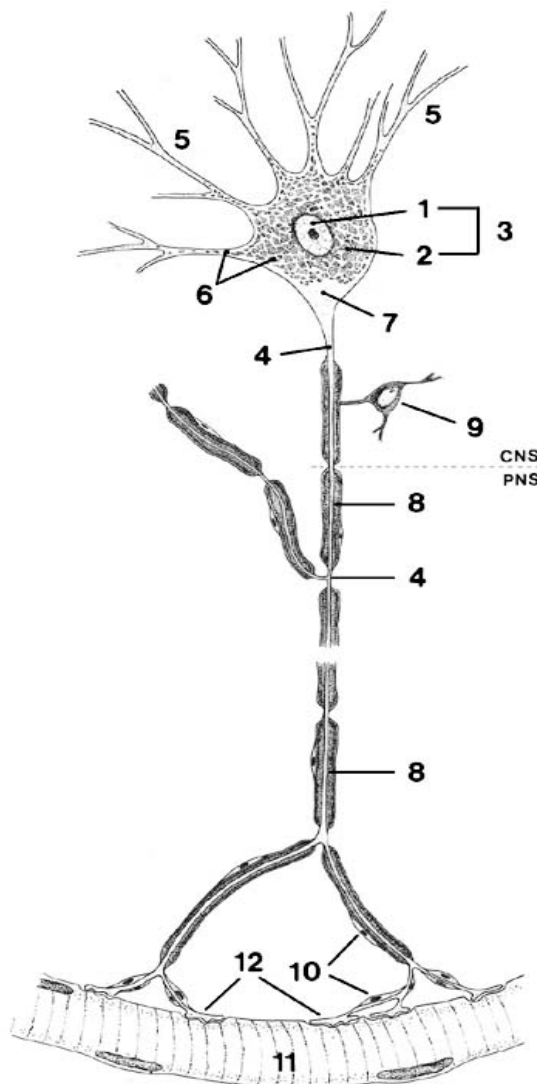


Figure 1: For use with question 1. (a)

- (b) With respect to the neuroendocrine system:
- (i) Define “**apraxia**” and [2]
 - (ii) explain “**dyspraxia and aphasia**”. [2]
- (c) Explain the difference in the position of the “cauda equina” between a three month old foetus and an adult. [2]
- (d) Explain:
- i. The amitotic nature of neurons and [2]
 - ii. Phantom limb pain. [2]
- (e) With respect to the physiology of the limbic system, explain the consequences of bilateral physiological damage to temporal lobes (including amygdala and hippocampal formation). [5]
- (f) Explain clinical signs of hyperparathyroidism. [5]
- (g) With respect to characteristic signs of endocrine disease, identify:
- i. Four endocrine conditions and [2]
 - ii. respective associated clinical signs for (g) i. above. [2]
- (h) Compare and contrast “wine and dine” response and “flight or fright” response [5]
- (i) A two year old child presents in your radiology department with clinical notes:
- “The child would not try to stand unsupported. Frequent falling. Diagnosis- Cerebellar medulloblastoma”.*
- Explain this diagnosis.

SECTION B

2. With the aid of diagrams, write brief notes on the anatomy of the hypophysis. [20]
3. (a) Heart failure following blocked arteries is a result of poor design of the neuroendocrine system. Discuss. [6]
- (b) The pituitary gland is the master gland of the neuroendocrine system. Discuss. [14]
4. Draw block diagrams to illustrate the main nervous connections of:
- (a) The vestibulocerebellum [4]
- (b) The paleocerebellum [4]
- (c) The neocerebellum [4]
- (d) The pyramidal tract and [4]
- (e) The cerebellum and automatic motor control. [4]
5. (a) With respect to the endocrine glands, describe the causes of:
- i. Hyperfunction and [4]
- ii. Hypofunction of the glands. [4]
- (b) Identify and explain two spinal cord syndromes [12]
6. (a) Explain visual agnosia. [6]
- b) With the aid of sketches, explain clinical features of visual pathway lesions. [14]

END OF EXAMINATION