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 <u>ALL</u> PARTS OF QUESTION 1 IN SECTION A AND ANY THREE QUESTIONS FROM SECTION B. SECTION A CARRIES 40 MARKS AND SECTION B 60 MARKS.

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

[6]

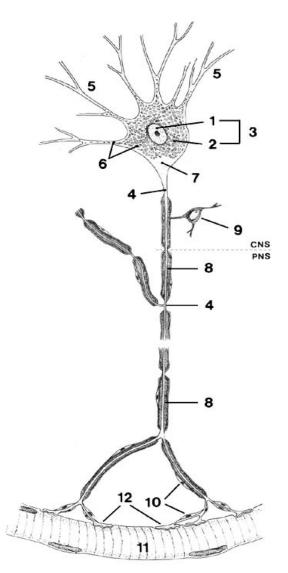


Figure 1: For use with question 1. (a)

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(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	[2]
	three month old foetus and an adult.	
(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	[5]
	consequences of bilateral physiological damage to temporal lobes	
	(including amygdala and hippocampal formation).	
(f)	Explain clinical signs of hyperparathyrodism.	[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:	[5]
	"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