

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**APPLIED PHYSICS DEPARTMENT**

**EXAMINATION**

**SRA 3106 IMAGING OF THE NEURO-ENDOCRINE SYSTEM 2**

**BSc HONOURS RADIOGRAPHY PART 111**

**MAY 2013**

**DURATION: 3 HOURS**

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

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**SECTION A**

- 1a). Describe the radiological appearances of the following pathologies of the spine on plain Radiography and CT scan images;
- (i) os odontoideum, [4]
  - (ii) sacralisation of L5, [4]
  - (iii) klippel-feil anomaly, [4]
  - (iv) hemivertebra and [4]
  - (v) subluxations due to rheumatoid arthritis. [4]
- b) Explain the role of radionuclide imaging in diagnosing pathology of the blood brain barrier. [6]
- c) Describe the sonographic appearances of any two pathologies of the thyroid gland. [6]
- d) Compare and contrast the radiological appearances of obstructive hydrocephalus on plain radiography and MRI scan images. [8]

**SECTION B**

2. A 90 year old male patient is referred to the imaging department for a myelography examination of the spine querying spondylitis. Discuss this imaging procedure and the expected

- radiological findings on this patient. [20]
3. Evaluate the role of CT, Angiography and Radionuclide imaging in the imaging of brain tumours. [15]
- b) Analyse the precautions to be considered for an unconscious patient undergoing an MRI scan of the brain. [5]
4. Evaluate the role of any two imaging modalities in demonstrating pathology of the pituitary gland and pancreas. [12]
- b) Explain the role played by MRI and CT in imaging of nerves and the spinal cord. [8]
- 5a) A Patient suffering from epileptic seizures is referred to the imaging department. Evaluate the role of P.E.T and functional MRI in informing diagnosis. [14]
- b) Outline the role of CT in brain imaging of AIDS patients. [6]
6. Justify the presence of a dedicated skull unit in the accident and emergency unit of an imaging department. [10]
- b) Compare and contrast the radiological appearances of T1 weighted and T2 weighted MRI images of brain pathology. [10]

**END OF EXAMINATION**