



Correction of 1st Semester English Make-up Exam – M1 Physic Medical

***Provide concise definitions for the terms written in bold; 10pts (1*1pt)**

- **Medical physics:** A field that combines healthcare and technology to identify and treat a wide range of medical disorders.
- **Ultrasound scans:** Imaging technique that uses high-frequency sound waves to produce images of structures inside the body.
- **CT scans:** Imaging method that uses X-rays to create detailed cross-sectional images of the body.
- **MRI scans:** Imaging technique that uses magnetic fields and radio waves to produce detailed images of the body's internal structures.
- **Functional Magnetic Resonance Angiography (FMRA):** Advanced MRI method that targets brain activity.
- **Magnetic Resonance Angiography (MRA):** Advanced MRI method that focuses on vascular anatomy.
- **Radiation therapy:** Cancer treatment method that uses high-energy radiation to kill cancerous cells.
- **Brachytherapy:** Cancer treatment method that inserts radioactive sources inside or close to the tumor.
- **PET (positron emission tomography) scans:** Imaging technique that provides metabolic and functional data, useful for cancer screening and monitoring treatment response.
- **Medical physicists:** Professionals who apply medical physics concepts to ensure the safe and effective use of medical imaging and treatment devices.

Task 2 : In your role as a healthcare professional, how would you articulate advanced imaging procedures to these patients? 3pts (1*1pt)

Patient 1: For your MRI scan of the head, you'll lie on a table that slides into a machine that uses magnets and radio waves to create detailed images of your brain. It's painless, but you'll hear loud tapping noises. You'll need to stay still during the 30 to 60-minute procedure.

Patient 2: Your CT scan for your chest involves lying on a table that moves through a machine taking X-ray images from different angles. It's quick, usually taking 10 to 30 minutes, and painless. You may need to hold your breath briefly for clearer images.

Patient 3: During your ultrasound to assess your baby's health, a gel will be applied to your abdomen, and a device called a transducer will be moved over your skin. It's painless and safe for both you and your baby, providing real-time images to monitor development. The procedure typically takes about 30 minutes.

Task 3 : According to the following medical cases propose the most suitable imaging procedure for each scenario. 4pts (1*1pt)

1. MRI of the Brain
2. CT Scan of the Chest
3. Ultrasound
4. CT Scan

Task 4 : 3pts

Medical imaging techniques are indispensable tools in diagnosing and monitoring various conditions. MRI offers detailed soft tissue images without radiation exposure, ideal for brain and musculoskeletal assessments. CT scans provide rapid, high-resolution imaging crucial for emergency diagnoses like strokes and trauma. Ultrasound facilitates real-time imaging without radiation, vital for monitoring fetal development during pregnancy. X-rays remain cost-effective and swift for skeletal assessments, while PET scans offer functional insights aiding oncology diagnosis and treatment planning.