



Lesson 4 Worksheet

In the framework of your educational journey, this worksheet serves as a pivotal touchstone for Lesson 4, a lesson committed to further advancing your knowledge and understanding in Biomedical Engineering. The worksheet employs a variety of questioning techniques such as multiple-choice questions, fill-in-the-blank exercises, and short answer responses to provide a comprehensive review of the material covered.

Recommended Grade Levels: 6-8

Multiple Choice Questions

- 1) What is MRI an acronym for?
 - a) Magnetic Resonance Insight
 - b) Magnetic Resonance Imaging
 - c) Magnetic Resonance Invention
 - d) Magnetic Resonance Indicator

- 2) How does MRI technology produce detailed images of internal body structures?
 - a) X-ray beams
 - b) Radio waves and a magnetic field
 - c) Ultrasound waves
 - d) Gamma rays

- 3) What new advancement is improving the MRI experience for patients?
 - a) Shorter time inside the MRI machine
 - b) Increased radiation exposure
 - c) Reduced image quality
 - d) All of the above



- 4) What is personalized medicine compared to in the text?
- a) A one-size-fits-all suit
 - b) A tailor-made suit
 - c) Someone else's glasses
 - d) A generic pair of glasses
- 5) What advanced technology is revolutionizing biomedical engineering?
- a) Quantum computing
 - b) Blockchain
 - c) Virtual Reality (VR)
 - d) Artificial Intelligence (AI)
- 6) What does Intuitive's Ion assist doctors with?
- a) Liver biopsy
 - b) Gastroscopy
 - c) Bronchoscopy
 - d) Colonoscopy
- 7) What role does MRI play in the diagnosis of neurological disorders?
- a) It does not contribute to diagnosis.
 - b) It offers a roadmap of brain pathways.
 - c) It only detects tumors.
 - d) It provides a visual representation of pain.



8) How are minimally invasive interventions compared to traditional methods?

- a) More painful
- b) Like fixing a watch with precise tools
- c) Like breaking a watch open
- d) More prone to complications

Fill-in-the-Blank Questions

1. MRI's non-invasive technology allows for safer _____.
2. Fonar's UPRIGHT® Multi-Position™ MRI allows patients to be scanned in different _____.
3. Traditional MRI scanners might remind you of fitting into a _____.
4. The patient in the case study was diagnosed with _____ based on special amyloid imaging.
5. MRI assists doctors in performing procedures that are so exact they can be compared to hitting the _____ in archery.



Short Answer Questions

Explain how advancements in MRI technology are making appointments faster and more efficient.

What is the significance of using Optically Pumped Magnetometers (OP-MEG) in MRI?

Discuss the concept of personalized medicine and how MRI contributes to it.



Multiple Choice & Fill in The Blank Answer KEY

Multiple Choice KEY

- 1) B
- 2) B
- 3) A
- 4) B
- 5) D
- 6) C
- 7) B
- 8) B

Fill in The Blank KEY

- 1) Diagnosis OR Imaging
- 2) Positions OR Postures
- 3) Coffin OR Tube
- 4) Alzheimer's Disease
- 5) Bullseye