



**LAND MANAGEMENT, ENVIRONMENT & SOLID-WASTE:
INSIDE EDUCATION AND BUSINESS IN CENTRAL ASIA
ERASMUS-EDU-2023-CBHE Project Number: 101129032**

MICRO-CREDENTIAL

LAND MANAGEMENT IN CENTRAL ASIA

10.- Introduction to Remote Sensing

Quiz

Week 10 – Remote Sensing Basics



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Quiz: Week 10 – Remote Sensing Basics

Topic	Week 10: Introduction to Remote Sensing	Question type: Multiple choice, single correct answer
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General topic coverage

- definition and scope of remote sensing
- difference between in situ data and remote sensing data
- remote sensing process and the role of energy
- electromagnetic radiation, visible spectrum, and atmosphere
- passive and active sensors
- platforms and basic image/data concepts
- image interpretation, image classification, and image enhancement
- introductory applications in land, water, agriculture, and environmental studies

Instructions for online use

- Each question contains four options.
- Only one option should be marked as correct.
- The wording is designed for direct student use on online learning platforms.
- An answer key is included on the final page for the instructor.

Question bank

Question 1. Which statement best defines remote sensing?

- A) Obtaining information about an object or area without direct physical contact
- B) Measuring only soil samples collected in the field
- C) Drawing maps only from ground surveys
- D) Taking measurements only inside laboratories

Question 2. What is the main difference between in situ data and remote sensing data?

- A) In situ data are always less accurate than remote sensing data
- B) In situ data are collected directly at the study location, while remote sensing data are collected without direct contact from a distance
- C) In situ data use satellites, while remote sensing data use only aircraft
- D) In situ data are digital, while remote sensing data are always analog

Question 3. What is the first basic requirement in the remote sensing process?

- A) A printed map
- B) An energy source
- C) A field notebook
- D) A ground control station

Question 4. In many optical remote sensing systems, what is the main natural energy source?

- A) The Moon

- B) Artificial flash units
- C) The Sun
- D) The Earth's core

Question 5. Which of the following is a passive remote sensing system?

- A) Radar
- B) LiDAR
- C) A camera recording reflected sunlight
- D) A laser scanner emitting its own pulse

Question 6. Which of the following is an active remote sensing system?

- A) A standard aerial photograph taken using reflected sunlight
- B) A multispectral image recorded only from solar illumination
- C) A radar system that sends out its own energy and measures the return
- D) A visual field sketch

Question 7. The visible portion of the electromagnetic spectrum is approximately:

- A) 0.04–0.07 μm
- B) 0.4–0.7 μm
- C) 4–7 μm
- D) 40–70 μm

Question 8. Why does the sky usually appear blue in daytime?

- A) Because water vapor reflects only blue light
- B) Because long wavelengths are scattered more strongly
- C) Because short wavelengths are scattered more strongly in the atmosphere
- D) Because the Earth emits blue radiation

Question 9. Which atmospheric process can reduce the quality of remotely sensed data?

- A) Scattering and absorption
- B) Only gravity
- C) Plate movement
- D) Magnetic declination

Question 10. Which statement correctly describes specular reflection?

- A) Energy is reflected equally in all directions
- B) Energy is reflected mainly in one direction from a smooth surface
- C) Energy is completely absorbed by the object
- D) Energy is converted only into sound

Question 11. Which list includes common remote sensing platforms?

- A) Ground, airborne, and satellite
- B) River, mountain, and valley
- C) Tablet, printer, and scanner
- D) Road, bridge, and tunnel

Question 12. In digital remote sensing, what is a pixel?

- A) A type of field sensor
- B) The smallest picture element in a digital image
- C) A method of map projection
- D) A ground control point

Question 13. What does image interpretation mainly involve?

- A) Physically touching the object being studied
- B) Extracting useful information from an image
- C) Printing the image in larger size
- D) Deleting spectral bands

Question 14. What is image classification used for in remote sensing?

- A) To increase the weight of a satellite
- B) To group pixels into land-cover or land-use classes
- C) To measure rainfall using a thermometer
- D) To replace field data completely

Question 15. What is image enhancement?

- A) A process used to improve the visual appearance of an image for analysis
- B) A way to reduce all images to black and white only
- C) A method to change ground truth data
- D) A process of moving satellites to lower orbit

Question 16. Which resolution describes how often a sensor revisits the same area?

- A) Spatial resolution
- B) Spectral resolution
- C) Radiometric resolution
- D) Temporal resolution

Question 17. Why are repeated satellite observations important in land studies?

- A) They make fieldwork impossible
- B) They support change detection over time
- C) They eliminate the need for interpretation
- D) They reduce all images to one band

Question 18. Which application is most directly related to remote sensing in land management?

- A) Monitoring land cover and land-use change
- B) Measuring only classroom attendance
- C) Preparing laboratory chemicals
- D) Repairing farm machinery

Question 19. What kind of information is commonly obtained from thermal infrared remote sensing?

- A) Surface temperature patterns
- B) Only parcel ownership records
- C) Only road names
- D) Magnetic north direction

Question 20. Why are microwave remote sensing systems valuable in some conditions?

- A)** They are limited to bright daylight only
- B)** They can help observe the surface even when clouds are present
- C)** They cannot detect moisture-related differences
- D)** They work only for handwritten maps

Answer key for the instructor

Q1–Q5	Q6–Q10	Q11–Q15	Q16–Q20
1. A	6. C	11. A	16. D
2. B	7. B	12. B	17. B
3. B	8. C	13. B	18. A
4. C	9. A	14. B	19. A
5. C	10. B	15. A	20. B

Source basis

Primary basis: Shokirov, Musaev, and Akbarov, Masofadan Zondlash (2015), especially the sections on the definition of remote sensing, the remote sensing process, electromagnetic energy, passive and active sensors, and introductory interpretation concepts.

Supporting titles listed in the uploaded course book bibliography: A. P. Cracknell and L. Hayes; J. B. Campbell; P. M. Mather; T. M. Lillesand, R. W. Kiefer, and J. W. Chipman; and ITC Principles of Remote Sensing.