NATIONAL OPEN UNIVERSITY OF NIGERIA
Plot 91, Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
DEPARTMENT OF ENVIRONMENTAL SCIENCE AND RESOURCE MANAGEMENT
2025_2 EXAMINATIONS

COURSE CODE: ESM 392
COURSE TITLE: REMOTE SENSING
CREDIT: 2 Units
TIME ALLOWED: 2 Hours
Instruction: Attempt question number ONE (1) and any other TWO (2) questions. *Question number one (1) is compulsory and carries 30 marks, while the other questions carry equal marks (20 marks) each.*

1a. What is Scale? **(6marks)**
b. Outline the types of scale in aerial photograph. **(6marks)**
c. Discuss the various visual variables used in aerial photo interpretation **(18marks)**

2a. Discuss five (5) different digital image enhancement procedures in remote sensing **(10 marks).**
b. List five (5) various digital image pre-processing techniques in remote sensing **(10 marks).**

3a. What is Aerial Photography? (**8 marks)**
b. Using suitable diagram, explain the types of aerial photographs **(12marks).**

4a. Define the following terms in photogrammetry
- i. Principal point
- **ii.** Flight line
- **iii.** Overlap
- **iv.** Stereo pair **(8 marks)**

b. Examine the 3 ways of obtaining the scale of an aerial photograph **(6 marks)**
c. Compute the scale of an aerial photograph taken with an aerial camera of focal length 152mm and from a flying height of 830m above sea level, over an area of average height of 50m above sea level**.** **(6marks)**

5a. What is image rectification and restoration. **(4marks)**
b. Explain briefly the processes of carrying out digital image restoration and justify the rationale for doing it in remote sensing. (**8marks)**
c. List the various techniques of pre-processing digital images. **(8marks)**