

**National Open University of Nigeria**

**Plot 91, Cadastral Zone, Nnamdi Azikiwe Expressway, Jabi - Abuja**

**Faculty of Science**

**APRIL, 2019\_1 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 THREE (3) questions. Question number one (1) carries 25 marks, while the other questions (15) each marks.

1a. What is Scale? **(1mark)**

b. Explain the types of scale in an aerial photograph.**(6marks)**

c. Discuss the various visual variables used in aerial photo interpretation **(18marks)**

2a. Elucidate on the different digital image enhancement procedures in remote sensing **(12 marks).**

b. List the various digital image pre-processing techniques in remote sensing **(3marks).**

3a. What is Aerial Photography? (**3marks)**

b. Using suitable diagram, explain any three of aerial photographs **(12marks).**

4a.Define the following terms in photogrammetry

1. **Stereo pair (2marks)**
2. **Overlap (2marks)**
3. **Flight line (2marks)**
4. **Principal point (2marks)**

b. Examine the 3 ways of obtaining the scale of an aerial photograph **(3marks)**

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**. (4marks)**

5a. What is image rectification and restoration? **(5marks)**

b. Explain briefly the processes of carrying out digital image restoration and justify the rationale for doing it in remote sensing. (**5marks)**

1. List the various techniques of pre-processing digital images. **(5marks)**