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**DEPARTMENT OF GEOGRAPHY**  
**SCHOOL OF SCIENCE AND SCIENCE EDUCATION**  
**FEDERAL UNIVERSITY OF TECHNOLOGY MINNA**

**FIRST SEMESTER EXAMINATION 2008/2009 SESSION**

COURSE CODE: REM 311

COURSES TITLE: PRINCIPLES AND DEVELOPMENT OF REMOTE SENSING

INSTRUCTION: ANSWER ANY FOUR QUESTIONS. CREDIT WOULD BE AWARDED FOR USE OF RELEVANT EXAMPLES AND ILLUSTRATIONS.

TIME ALLOWED: 2½ HOURS.

1. Discuss any one of the following;
  - I. Radio horizon and problem of power scattering.
  - II. Matter and energy interaction in the microwave and optical region
  - III. The concept of radiometry in remote sensing
2. a) Define the equation ;  $E = hc/\lambda$   
b) What is the implication of the equation in remote sensing?
3. Describe the layers of the ionosphere with respect to radio wave propagation.
4. a) Define the electromagnetic spectrum.  
b) Draw a simple diagram showing the electromagnetic energy which makes up the electromagnetic spectrum.
5. a) Discuss the layers of the atmosphere  
b) Which of the layers in (a) above has little effect on radio wave and why?
6. a) Examine Space and earth segment as the basic elements of communication satellite.  
b) Discuss the advantages and limitation of using satellite for communication.