

**2008**  
**M.Sc.**  
**1st Semester Examination**  
**REMOTE SENSING AND GIS**  
**PAPER—II**

Full Marks : 40

Time : 2 Hours

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

**Module—I (RG-1103)**

Answer any two of the following.

20

1. What are the general characteristics of photographic emulsion? Discuss about the characteristics of Orthochromatic, Panchromatic and near infra-red emulsions. Show with a neat diagram the structure and sensitivity of black and white photo film and paper emulsion over the wave length intervals. 2+3+5
2. Briefly explain the colour mixing processes showing the formation of 'white' and the three complimentary colours. What do you understand by photo resolution? Discuss about the various components of single lens camera. 5+2+3
3. Define "film exposure". Give mathematical expression of 'film exposure', and from this deduce 'f-stop'.  
 A film is properly exposed when lens aperture setting is  $f/8$  and the exposure time  $1/125$  sec. If the lens aperture setting is changes to  $f/4$  and the scene brightness does not change, then what should be the exposure time to yield proper film exposure. 2+3+2+3



(Turn Over)

4. Write short notes on any five :

5×2

- (a) Camera calibration.
- (b) Transmittance and opacity.
- (c) Characteristic curve.
- (d) Colour Infrared Photography.
- (e) Relative & Absolute orientation.
- (f) Vertical exaggeration.
- (g) Photogrammetric workstation.
- (h) Stereoscopy.

**Module—II (RG-1104)**

Answer any two questions.

20

5. (a) How scale of an aerial photograph is related with flying height and focal length of the camera.
- (b) A monument 185.5ft tall, casts shadow onto level ground that is measured 0.286in. on the photograph. The scale of the photograph is 1:6000. Calculate the height of a tower casting shadow on the same photograph. 5+5
6. (a) In aerial photography why more than 50% overlap is necessary in case of endlap. Whereas only 30% is enough for sidelap?
- (b) How length of the airbase can be measured from a stereo pair? 6+4
7. (a) Define photogrammetry? What are the various requirements for stereoscopic vision?
- (b) With neat diagram, derive the parallax height equation on a level terrain. 1+2+7
8. Write short notes on any two : 5×2
- (a) Orthophoto & planimetric map.
  - (b) Derivation of the scale of an aerial photograph.
  - (c) Relief distortion in single vertical photograph.