

|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|

**DEPARTMENT OF CIVIL ENGINEERING  
COLLEGE OF ENGINEERING  
ANNA UNIVERSITY, CHENNAI – 600 025**

**END SEMESTER EXAMINATION NOVEMBER 2012**

**THIRD SEMESTER GEOINFORMATICS (R 2008)**

**GI 9203 – PHOTOGRAMMETRY I**

**Time : 3.00 hrs**

**Max. Marks : 100**

- Instructions:** 1. Answer all questions under PART-A and PART-B respectively  
2. Assume suitable data wherever necessary  
3. Draw neat sketches wherever required

**PART – A**

**10 x 2 = 20 Marks**

1. Define photogrammetry.
2. What is Scheimpflug condition?
3. What is comparator?
4. Derive scale of vertical photograph.
5. Define the terms i)Tilt ii)Swing.
6. What is meant by differential rectification?
7. Differentiate between pre pointing and post pointing.
8. What are the characteristics of ground control point?
9. List the equipments used for photo interpretation.
10. Differentiate image texture from image pattern.

**PART – B**

**5 x 16 = 80 Marks**

- |      |    |      |  |    |
|------|----|------|--|----|
| 11.  | a. | i.   | Name and briefly describe the main parts of a frame aerial camera. | 11 |
|      |    | ii.  | Explain the procedure for perfection printing.                     | 5  |
| 12.  | a. | i.   | What are the applications of the photogrammetry?                   | 4  |
|      |    | ii.  | Explain in detail about lens aberration.                           | 12 |
| (or) |    |      |  |    |
|      | b. | i.   | What are the optics used in photogrammetric equipments?            | 3  |
|      |    | ii.  | Explain the procedure for processing of B/W film.                  | 9  |
|      |    | iii. | Discuss about end lap and side lap.                                | 4  |

13. a. i. Derive Parallax equation. 8
- ii. A pair of overlapping vertical photographs was taken from a flying height of 1200m above sea level with a 152.4-mm-focal-length camera. The air base was 400m. With the photos properly oriented, flight-line coordinates for points a and b were measured as  $x_a=53.4\text{mm}$ ,  $y_a=-50.8\text{mm}$ ,  $x'_a=-38.3\text{mm}$  and  $y'_a=50.9\text{mm}$ ,  $x_b=88.9\text{mm}$ ,  $y_b=-46.7\text{mm}$ ,  $x'_b=7.1\text{mm}$ ,  $y'_b=-46.7\text{mm}$ . Calculate the elevations of points A and B and the horizontal length of line AB. 8
- (or)**
- b. i. Derive an equation for auxiliary image co-ordinate for a tilted photo with neat sketch. 6
- ii. A particular tilted aerial photograph exposed with a 152.07-mm-focal-length camera has a tilt angle of 2.750 and a swing angle of 140.000. On this photograph, what are the auxiliary  $x'$  and  $y'$  photo co-ordinates for points a and b, whose photo coordinates measured with respect to the fiducial axes are  $x_a=69.27\text{mm}$ ,  $y_a=-41.80\text{mm}$ ,  $x_b=-54.72\text{mm}$  and  $y_b=106.38\text{mm}$ ? 10
14. a. i. Write short note on Nadir point and principle plane. 6
- ii. Explain in detail about methods and instruments used for ground control survey. 10
- (or)**
- b. i. What are the factors to be considered for flight planning? 6
- ii. A rectangular area 100 km in the North-South direction by 50 km East West direction is to be covered with aerial photography having a scale at 1:5,000. End lap and side lap are 60% and 20% respectively. A camera having a 23cm square format is to be used. Compute the total number of photographs in the project, assuming that flight line Parallel with east and west project boundaries. 10
15. a. i. With neat sketches explain various elements of visual interpretation with examples. 16
- (or)**
- b. i. What is an interpretation key? Explain different types of interpretation keys. 10
- ii. Explain the characteristics of photographic images. 6