SRI LANKA SURVEY DEPARTMENT

Promotion Examination from Class II "B" to Class II "A" of Sri Lanka Technological Service Officers -2015

(For Map Technological Officers)

Elementary Photogrammetry

2015.07.17 Time: Three (03) hours 1300 – 1600 hours

Answer all Questions.

---

1. (i) What do you mean by Aerial Photograph?

(ii) Draw model diagram of an aerial camera, label the main components of that camera and describe those components briefly.

(iii) What are the information available in the margin of aerial photograph? Describe those information with clear diagrams.

(iv) Scale of an aerial photograph can be calculated in two ways. Describe those two methods.

(v) A, B are two points in a Map and the distance between these two points in the map is 6.5cm. Corresponding distance between those two points in an aerial photograph is 10cm. If the scale of the map is 1:50 000 then find the scale of the aerial photograph.

(25 marks)

2. (i) Aerial photographs can be categorized into **Vertical Photograph and Oblique Photograph**. Describe the characteristics of these two photographs.

(ii) In an aerial photograph the distance between principal point and ISO centre is 20mm and principal distance of that aerial photograph is 150mm. Find the tilt of the photograph.

(iii) What do you mean by flying height?

(iv) Focal length of a camera is 210mm and an aerial photograph was taken using that camera and the distance between two points in that aerial photograph is 119.4mm. Corresponding distance between those two points in a map is 27.2mm. Scale of the map is 1:50,000. Those two points are located 100 m above the mean sea level on the ground. Find the flying height of the aircraft above mean sea level when the photograph was taken?

(20 marks)

3. (i) What is Relief Displacement is an aerial photograph?

(ii) What do you mean by Tilt Distortion in aerial photograph? Explain your answer with clear diagram.

(iii) Derive an equation to find the Relief displacement (Δr) in a vertical photograph based on height of the object (h), flying height (Z) and distance between nadir point and object in the photograph (r).

(Iv) On a flat horizontal terrain there is erected flag pole of 25m. The distance from the Nadir Point of the vertical photograph to the pole is 300m. The flying height is 1000m. Principal distance is 200mm. Compute the relief displacement.

(20 marks)

4. (i) What is Binocular vision and Stereoscopic Viewing?

(ii) What are the requirements to be fulfilled during the photography to have stereoscopic viewing in a pair of aerial photograph?

(iii) Explain with clear diagram that how stereoscopic view is achieved from a pair of photograph using a Mirror Stereoscope.

(iv) What do you mean by Rectification in an aerial photograph?

(20 marks)

5. Write short notes on following terms.

a. Parallax in a pair of consecutively taken aerial photograph.
b. Pocket Stereoscope
c. Lens Distortion
d. Photo interpretation.
e. Flight Planning

(15 marks)

SRI LANKA SURVEY DEPARTMENT

Promotion Examination from Class II "B" to Class II "A" of Sri Lanka Technological Service Officers -2015

(For Photogrammetric Technological Officers)

Photogrammetric Work - Practical

2015.07.28

Time: Three (06) hours 0900 – 1200 hours

Answer all Questions. 1300 – 1600 hours

---

1. Make arrangements to carry out model orientation of given stereo pair and get a record of orientation parameters of particular model.

   Following data are given,

   (i).Focal lengths of cameras used. (152.90mm/152.14mm)

   (ii). Coordinates of the Groober points (Marks 25)

2. Extract planimetry as well as altimetry (according to create Digital Elevation Model) data in one sq. km area with the help of Microstation software. Data collection should be according to the data dictionary, symbol library & codes which are used for 1: 10000 mapping in Northern Region. (Marks 50)

3. Prepare the data to suit for Geo database and convert to DXF/DWG format (Marks 20)

4. Archive data on your own directory as well as CD

   (Marks 05)