

KATHMANDU UNIVERSITY
End Semester Examination
May/June, 2022

Mark Scored:

Level : B.Arch.

Year : IV

Course : ARCH 425

Semester : II

Exam Roll No. :

Time: 30 mins.

F.M. : 10

Registration No.:

Date:

SECTION "A"

[20Q. × 0.5 = 10 marks]

Encircle the most appropriate option.

1. Aerial photographs are.....
 - a. Perspective projections
 - b. Orthographic Projections
 - c. Isometric Projection
 - d. Oblique Projections
2. Which of the following is **true**?
 - a. Farther the object, greater the parallax angle
 - b. Nearer the object, smaller the parallax angle
 - c. Farther the object, smaller the parallax angle
 - d. Parallax angle does not have any impact
3. Overlap in aerial photograph is necessary:
 - a. To tie different points such that the principal point of each print appears on the adjacent prints
 - b. To increase the number of images
 - c. To get good quality images
 - d. To enlarge the details
4. For an aerial photograph, the interpretation is easy if it is:
 - a. Vertical
 - b. Tilted
 - c. Oblique
 - d. Near Vertical
5. On a vertical photograph, the relief displacement is always radial from:
 - a. Principal point
 - b. Isocenter
 - c. Nadir Point
 - d. Principal Line
6. Rectification of aerial photographs is required for eliminating:
 - a. Tilt
 - b. Collimation
 - c. Relief
 - d. Parallax
7. Parallax bar is used to measure
 - a. Parallax
 - b. Height
 - c. Parallax Difference
 - d. Relief Displacement
8. The photographs captured using the camera with a lens of shorter focal length looks as if
 - a. They have been taken close to the ground.
 - b. They have been taken at altitude.
 - c. The length of focal length does not impact photographs.
 - d. They produce larger scale photographs.
9.on a dark background gives the best result while marking the ground control points:
 - a. Maximum Contrast
 - b. Minimum Contrast
 - c. Dark color
 - d. Light Color

10. Which of the following is seen as a canopy model and only see's ground where there is nothing else above it?
 - a. DEM
 - b. DSM
 - c. DTM
 - d. Orthophoto
11. Feature extraction using Stereo restitution gives:
 - a. Easy and Faster Results
 - b. Simple results
 - c. 3D View
 - d. Poor Positional accuracy
12. Tilt displacement affects increase away from the of the photograph
 - a. Principle points
 - b. Isocenter
 - c. Fiducial Mark
 - d. Nadir
13. The exact position of the front nodal point of the lens in the air at the instant of exposure is
 - a. Air Station
 - b. Nadir Point
 - c. Plumb Point
 - d. Principle Point
14. Planimetric features are often digitized from aerial photography into data layers that can be used in analysis and cartographic outputs.
 - a. Raw
 - b. Rectified
 - c. Oblique
 - d. Orthorectified
15. The maximum parallactic angle formed by eyes is approximately
 - a. 15°
 - b. 10°
 - c. 8°
 - d. 13°
16. In which order the procedure is followed for orthophoto production?
 - a. Aerial Triangulation, Generation of DTM, Production of orthophoto mosaic, Orthorectification
 - b. Orthorectification, Aerial Triangulation, Generation of DTM, Production of orthophoto mosaic
 - c. Generation of DTM, Aerial Triangulation, Orthorectification, Production of orthophoto mosaic
 - d. Aerial Triangulation, Generation of DTM, Orthorectification, Production of orthophoto mosaic
17. A pair of overlapping photographs is called
 - a. Depth perception
 - b. Stereo model
 - c. Orthophoto
 - d. Orthomosaic
18. Which of the following includes elements like ground control system, software etc.?
 - a. UAV
 - b. UAS
 - c. Drone
 - d. RPAV
19. Super wide-angle camera has the focal length of
 - a. 88mm
 - b. 115mm
 - c. 210mm
 - d. 305mm
20. Which of the following android apps is preferred for manual aerial image acquisition?
 - a. Pix4D Capture
 - b. DJI GO 4
 - c. Pix4D Mapper
 - d. AgiSoft

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Level : B.Arch.
Year : IV
Time : 2 hrs. 30 mins.

Course : ARCH 425
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F.M. : 40

SECTION "B"
[5Q. × 4 = 20 marks]

Attempt *ALL* questions. Assume suitable data if necessary.

1. What is photogrammetry? Explain major photogrammetric phases as a result of technological innovations. [1+3]

OR

What are the types of aerial photographs? Differentiate drift from crab. [2+2]

2. What is parallax? Drive its relation where every symbol carries their usual meaning. [1+3]

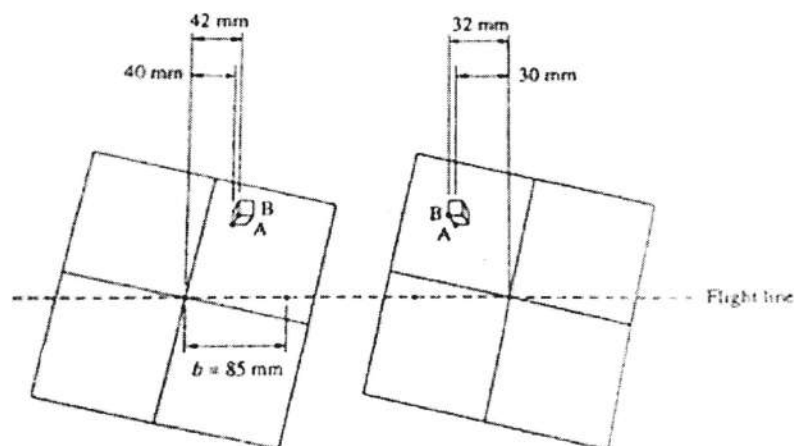
3. Explain briefly the types of photo control points. What are the general principles to be followed to select a photo control points? [2+2]

4. Define scale. The length of an airport in a vertical photograph is 6.30 inches and in the map of the same area having scale 1:24000, it appears to be 4.06 inches. Find the scale of the photograph. [1+3]

5. What is relief displacement? Prove that the relief displace on image is directly proportional to the height of the object and inversely proportional to the flying height of the aircraft. [1+3]

OR

The flying height above the base of the building shown in figure below. The transferred principal point permits the measurement of base, b . From the given measurements, determine the height of the building by parallax. [4]



SECTION "C"
[2Q. × 10 = 20 marks]

Attempt *ALL* questions.

6. Write in brief about the supervised feature extraction techniques and unsupervised feature extraction techniques. How do you differentiate between DSM with DTM? Explain the procedure of creating DTM with flowchart diagram. What are the main advantages of photogrammetric method over ground survey? [1.5+2+4+2.5]
7. What are the main points to be considered before aerial flight planning for photogrammetric data acquisition? Explain the procedure for UAV Flight Planning. What are the steps involved in feature extraction? [2.5+5+2.5]