Details concerning exam 2012

1) Basic definition:
    a) Elements of internal image orientation
    b) Elements of external image orientation
    c) Elements of relative model orientation
    d) Elements of absolute model orientation
    e) Principal point
    f) Projection point
    g) Kamera constant
    h) Kamera axis
    i) Fiducial coordinate system
    j) Spatial coordinate system
    k) Model coordinate system
    l) Photogrametric coordinate system
    m) Lens distortion (radial i tangencial)
    n) Stereogram of normal images (normal case)
    o) Vertical/horizontal images
    p) Collinearity condition in image and object space
    q) Complanarity condition
    r) Equivalent images
    s) Orthophoto
    t) DTM/DSM
    u) Digital image and its feature
    v) Histogram, stretching
    w) Resampling
    x) Multispectral image
    y) Training files

Object coordinate determination from pair of airborne image using equivalent image method and beam method.
Model coordinate system defined by: left image and base
Relative orientation of pair images. Analytical model creation on the base on stereogram of airborne images and its absolute orientation
Backgrounds of stereoplottering Analogue, analytical, digital stereplotters – backgrounds, basic differences, steps of mapping. 3D digitization for vector map creation. Photogrammetric station.
Aerotriangulation: aims, kinds, beam method. New methods (digital aerotraingulation, GPS/INS application). Photogrammetric network, CGP natural and artificial.

DTM/DSM – definition, data gathering, automation methods – cross correlation, epiopolar geometry, VLL . DTM accuracy requirements

Photographical maps. Geometrical image processing, projection transformation 2D. Orthophotomap creation: rationals, back and forward transformation. Orthoimage, orthophotomap. Orthophoto in Poland, standards, recqiurements for airborne photos, satellite images, DTM Steps of photogrammetric project.

Digital image and its features, image processing: geometric and radiometric (point, local, morphological). Resampling.

Color models: RGB, CMY i CMYK, HSI, HSV, CIE.

Electromagnetic radiation and its interaction with the object. Atmospheric windows. Spectral curves, multispectral image, resolution: spatial, spectral, radiometric, temporal.

Initial multispectral image transformation: Radiometric correction: detector calibration, scattering in the atmosphere, illumination and topographical effect. Geometric transformation.

Data extraction: color composite, quantititive parameters (albedo, RVI, NDVI, radiant temperature).

Image classification, unsupervised, supervised, methods (parallel pipe, Minimum distance, Maximumlikehood, Machalonobis distance).

Satellite characteristic (Landsat 5 i 7, Spot, IRS, Aster). VHR satellite (Ikonos, QuickBird). Orthophotogeneration of satellite images: polinominal, parametric.

Radar images (SLAR, RAR, SAR), interferometry, differantial interferometry.

ALS, TLS – characteristic, application.