

BACHELOR OF CIVIL ENGINEERING (EVENING) EXAMINATION 2017
(Second Year, First Semester, Supplementary)

SURVEYING III

Time: Three Hours

Full Marks 100
(50 marks for each part)

Use a separate Answer-Script for each part

| Question No. | Part I | Marks |
|---|--|---------|
| Answer any TWO questions out of three from this Part | | |
| 1 | (a) Draw a typical 'spectral reflectance envelope' for deciduous and coniferous type tree. | 10 |
| | (b) Draw a typical 'spectral reflectance curve' for vegetation, soil and water. | 10 |
| | (c) What is the difference between 'spectral reflectance envelope' and 'spectral reflectance curve'? Why this difference occurs? | 5 |
| 2 | (a) What is FCC? Make a list of the basic information which can be obtained from a FCC. | 2+5=7 |
| | (b) Why the vegetation shows red in FCC? | 2 |
| | (c) How can you identify the river flood plain from FCC? | 3 |
| | (d) How can you identify (visually) oxbow lake in FCC? | 2 |
| | (e) How the 'flowing water' and 'stagnant water' bodies can be differentiated from FCC? | 2 |
| | (f) How do you identify the natural and artificial features through satellite imageries? | 3 |
| | (g) How do you differentiate cloud coverage from snow coverage in satellite imageries? | 3 |
| | (h) A green play ground is not showing red colour in FCC. Explain the reason behind it. | 3 |
| 3 | (a) Explain fundamentals of visual image interpretation and its importance. What are the elements of visual image interpretation? Explain briefly. | 5+10=15 |
| | (b) What is the importance of the temporal aspect of image interpretation? | 5 |
| | (c) What are the different applications of remote sensing in natural resource management? | 5 |

**B. CIVIL ENGINEERING (EVENING) 2ND YEAR 1ST SEMESTER SUPPLEMENTARY 2017
SURVEYING – III**

Time: 3 Hours

Full Marks: 100
(50 marks for each part)

Part II

**Use Separate Answer scripts for each Part
Answer ALL Questions**

1. Write short notes on the following – 5×5
- i. Principle and conjugate principle points
 - ii. No Shadow point, height of a floating body
 - iii. Parallax of Stereoscopic pair
 - iv. Calibration corrections of EDM
 - v. Reflector of a EDM
2. A 30Km long and 20Km wide area is to be covered in an aerial survey scheme with a 150mm focal length camera from a flying altitude of 3000 m The photographic plates are 350mm square in size. The shutter interval is 8secs and the forward and lateral overlaps are 55% and 25% respectively. Without considering the effect of Crab and Drift, Determine Flying Height, Number of flight lines, Total No of Photographs to be taken and Ground Velocity. 10
3. Using an EDM device the observed distance between two stations A & B after standardisation is 250m. Considering the following information find the corrected Geodetic distance between these stations at MSL. The Cauchy equation for the group refractive index is –
- $$N_g = (n_g - 1)10^6 = \left(A + \frac{3B}{\lambda^2} + \frac{5C}{\lambda^4} \right) p \left(\frac{1+\beta p}{1+at} \right) - \left(Q - \frac{R}{\lambda^2} \right) \left(\frac{e}{1+at} \right)$$
- where,
- A = 0.283617; B = 0.0016062; C = 0.00001345; Q = 0.0468; R = 0.00051; $\beta = (0.7868 - 0.0118t) \times 10^{-6}$; Coefficient of thermal expansion of air = 0.003661 /°C; Atmospheric pressure = 1011mb; Temperature = 30°C; Partial pressure of the atmospheric water vapour = 45mb; Wavelength of EM wave = 0.9 μ m. Coefficient of Refraction = 0.125; Average Radius of Curvature of earth = 6400Km., R.L. of instrument centre = 42.125m; R.L. of target centre = 105.385m 15
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