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Total No. of Questions: [09]

Total No. of Printed Pages: 1

B. Tech Civil Engg. (Semester – 4th)
GEOMATICS ENGINEERING
Subject Code: BCIED1451
Paper ID: [19110713]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a. Define stereoscopic parallax.
- b. Define the terms crab and drift.
- c. Explain the term 'Atmospheric Windows'.
- d. Explain the working principle of 'Remote Sensing'.
- e. Briefly list out the sources of errors in GIS.
- f. Write the functionalities of GIS.
- g. List out the applications of GPS in civil engineering.
- h. What is NAVIC system of India?
- i. List out the components of GIS.
- j. Define the terms 'vertical photograph and tilted photograph'.

Section – B

(5 marks each)

- Q2. A photometric survey is carried out to a scale of 1: 2000. A camera with a wide-angle lens of focal length 150 mm was used with 24 x 24 cm plate size of a net 65% overlap along the line of flight. Find the error in height given by an error of 0.1 mm in measuring the parallax of the point.
- Q3. With the help of basic interaction equations, explain the interaction mechanism of EM radiation with earth's surface.
- Q4. Describe the types of vector overlays with neat sketches.
- Q5. Describe in detail how satellite-to-user range can be determined.
- Q6. Differentiate between the following: (a) Active and Passive remote sensing, (b) Selective and non-selective scattering

Section – C

(10 marks each)

- Q7. Determine the number of photographs required to cover an area of 10 km x 10 km if the longitudinal overlap is 60% and the side overlap is 30%. The photo size is 20 cm x 20 cm and the scale is 1 cm = 100 m.
- Q8. Discuss in detail electromagnetic energy and electromagnetic spectrum.
- Q9. Describe the component subsystems of GIS. Discuss the differences between vector and raster formats for storing data in GIS.