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| Menofia University Faculty of Engineering, Shebin El-Kom Civil Engineering Department Second Semester Exam, 2014-2015 Date of Exam: 6 / 1 / 2015 |  Minufiya University | Subject : Positioning Systems Code: CVE547 Year : Public Works Diploma course Time Allowed : Three hours Total Marks : 100 marks |
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Try all Questions (Use clear sketches)

[Marks]

Question (1)

[20]

The GPS geodetic heights of stations A & B are 64.567 m and 82.308 m; and their elevations are 52.106 m and 70.315 m, respectively. Stations A and B have model geoid undulations of 12.85 m and 12.78 m. Compute the elevation of station C that has a geodetic height of 89.451 m and a model geoid undulation of 12.67 m.

Question (2)

[20]

- Define the space, control and user segments in the GPS technique.
- Using brief sketches only, explain how a sky plot and a satellite availability plot can be used for planning a GPS survey.
- Discuss the factors to be considered when selecting the location of a GPS antenna.

Question (3)

[20]

- Explain how GPS systematic errors can be eliminated by single, double and triple differences.
- Define the meaning of the DOP-factor and its relation to satellites geometry in the sky.
- What is the difference between rapid and precise satellite ephemerides?

Question (4)

[20]

- Compare between single and dual frequency receivers.
- Compare among static, rapid static, pseudo-kinematic and kinematic GPS procedures. Mention the types of projects, for which such procedures are suitable.
- Why should GPS control surveys form closed geometric units?

Question (5)

[20]

- Compare between code and carrier phase measurements.
- Discuss the importance of mask angles in the GPS technique.
- Compare among: the analysis of fixed baseline measurements, analysis of repeat baseline measurements and analysis of loop closures.

With best wishes

| This exam measures the following ILOs | | | | | | | | | | | | | | | |
|---------------------------------------|----------------------------------|--------|--------|--------|--------|---------------------|--------|--------|--------|--------|---------------------|--------|--------|--------|--------|
| Question Number | Q1 | Q2 | Q3 | Q4 | Q5 | Q1 | Q2 | Q3 | Q4 | Q5 | Q1 | Q2 | Q3 | Q4 | Q5 |
| skills | dk-1-1 | dk-1-2 | dk-1-1 | dk-1-2 | dk-1-2 | di-2-1 | di-2-1 | di-2-1 | di-2-1 | di-2-1 | dp-1-1 | dp-1-1 | dp-1-1 | dp-1-1 | dp-1-1 |
| | Knowledge & Understanding Skills | | | | | Intellectual Skills | | | | | Professional Skills | | | | |