Association of Ontario Land Surveyors

Academic and Experience Requirements Committee

PROFESSIONAL (Photogrammetric) EXAMINATION
Friday, November 30th, 2001
9:00AM

TIME ALLOWED: **Four (4) hours**

 # OF QUESTIONS: **Nine (9)**

INSTRUCTIONS

1. There are nine (9) questions; please ensure that you have a complete copy of the examination.
2. Note the number of marks for each question before compiling your answers.
3. Place your exam registration number at the top right-hand corner of each page of your answers. DO NOT write your name on or in the book(s).
4. Each answer must begin on a new page, however questions may be answered in any order.
5. Reference each response to its question number, including subsection.
6. Write only on the right hand side of the examination book. You may wish to use the left (blank) side for calculations, etc., however anything written on the blank side will not be considered during marking.
7. Do not write in pencil.
8. This examination must be returned to the invigilator.

TOTAL MARKS: **100**
PASS: **65%**

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"Member of the Canadian Council of Land Surveyors"

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Question 1 (15)

A City Engineer has contacted you with a view to updating their existing large scale digital topographic database.

1. Provide a list of options and technologies available, indicating their respective strengths and weaknesses. (10)

2. Provide a list of questions to be asked of the City Engineer to assist you in making your final recommendation. (5)

Question 2 (5)

One of your regular clients requests new photogrammetric mapping. The area he requests lies partially within the area of a project previously completed by your firm for another client. Some of the previous information, such as photo control, could be used on the new project, thereby reducing the cost of the new project. Would you use this previous information, and, if so, what steps would you take before using it?

Question 3 (15)

A client has acquired a quarry and has contacted you for a proposal to undertake stockpile monitoring on a twice-yearly basis. Discuss, in detail, what your approach would be if awarded this project and provide an indication of the accuracy you would expect from your volumetric computations. A cost estimate is not required.

Question 4 (6)

There are three common billing arrangements in our business: hourly rates, fixed fee, and upset fee.

Explain each method, including the advantages and disadvantages of each.

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Question 5 (16)

You are contacted by a potential client to prepare a proposal for digital topographic mapping of part of a local municipality. The following information is provided:

- The parcel is approximately two kilometers square and is bounded by main roads on all sides. On the southern boundary and immediately south of the road is Lake Ontario.
- Established and monumented horizontal and vertical control networks exist. Horizontal monuments are located along the western and northern boundaries of the site and are spaced at approximately every kilometer. Horizontal monuments are also located parallel to the eastern boundary but are approximately 100 metres beyond this limit. There are no monuments along the southern boundary. Bench marks surround the site.

The following mapping specifications must be met:

-Horizontal Accuracy:	+/- 20 centimetres
-Vertical Accuracy:	+/- 15 centimetres
-Contour Interval:	0.5 metres

Features to be collected are buildings, driveways, sidewalks, roads, maintenance holes, catch basins, individual trees, fire hydrants, road signs and poles.

The final product is an AutoCad drawing file.

1. Sketch your proposed photo control configuration indicating the density and spacing of points. (3)
2. Provide justification for your choice of photo-scale for this project. (2)
3. Prepare a detailed list of the survey and photogrammetric equipment you would expect to use on this project. (4)
4. Describe your proposed methodology and indicate the quality control to be used on the various project phases. (7)

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Question 6 (6)

1. List the main components of a Geographic Information System (GIS). (2)

2. Identify the distinguishing characteristics of these systems when compared to Computer Aided Drafting (CAD) systems. (2)

3. List the items to be considered from a physical database design viewpoint when undertaking a GIS project. (2)

Question 7 (12)

The Surveyors Act allows for licences, certificates of registration and certificates of authorization.

1. Outline briefly the rights that a holder of each of the above is entitled to. (6)

2. Outline the requirements or conditions that must be satisfied before each of the above may be issued by the Association. (6)

Question 8 (5)

The following motion was passed at the 2001 Annual General Meeting of the AOLS:
'Whereas continuing education is a vital component of maintaining professional competency, be it resolved that Council consider and examine the implementation of a mandatory continuing education programme."

Discuss your views on this motion and give suggestions on what might be included in such a programme.

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Question 9 (20)

Outline in your opinion a reasonable disposition—and the reasons therefore—for each of the following matters brought before the AOLS Complaints Committee:

a) A complaint against a member for failing to report to the Registrar the negligence of a fellow member. **(5 marks)**

b) A complaint against a member for soliciting work from clients of a former recent employer of the member. **(5 marks)**

c) A complaint against a Certificate of Registration member for advertising in the "Surveyors—Land" section of the Yellow Pages telephone directory. **(5 marks)**

d) A complaint against a member for charging a fee for professional services that was perceived by the complainant to be excessive. **(5 marks)**