Name_____Surname_____Student ID_____Seat number_____

**King Mongkut's University of Technology Thonburi**

**Final Examination**

**Semester 1 Academic Year 2014**

CVE 223 SURVEYING PRACTICES 2nd Year International Program

Date: Monday 8 December 2014 Time 13.00 – 16.00

**Instructions:**

1. There are 5 questions, total of 7 pages (includes cover, 100 points).
2. Write your answers in the question sheets **ONLY.**
3. An approved calculator is **allowed** in the examination room.
4. **Not allowed** any documents or textbooks in the examination room.

Examiner: Thongchai Phothong

(Tel. 0–2470–9147)

This examination paper has been approved by the Department of Civil Engineering

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(Associate Professor Dr. Sutat Leelataviwat )

Head of the Civil Engineering Department

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1. Find distance CD in meter with data in Table 1.(10 marks)

Table 1 Pacing data

| Station | Distance by tape | | Number of pacing | |
|---|---|---|---|---|
| | Forward, m. | Backward, m. | Forward, count | Backward, count |
| A to B | 42.05 | 42.1 | 45 | 47 |
| C to D | | | 68 | 72 |

Answer

2. Select the correct procedures to setting up the theodolite and reorder it by put the number in front the correct procedures. (10 marks)

_____ adjusts position of theodolite by loosing the screw at the tripot head

_____ adjusts circular bubble by sliding tripot leg

_____ unfolds the tripot with the hight average your chest

_____ locks the theodolite on the tripot head

_____ adjusts tube bubble by foot screw

_____ adjusts the plummet by foot screw

_____ adjust tube bubble by sliding tripot leg

_____ adjusts the plummet by sliding tripot leg

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3. Calculate the height of telephone steel truss in Figure 1. (15 marks)

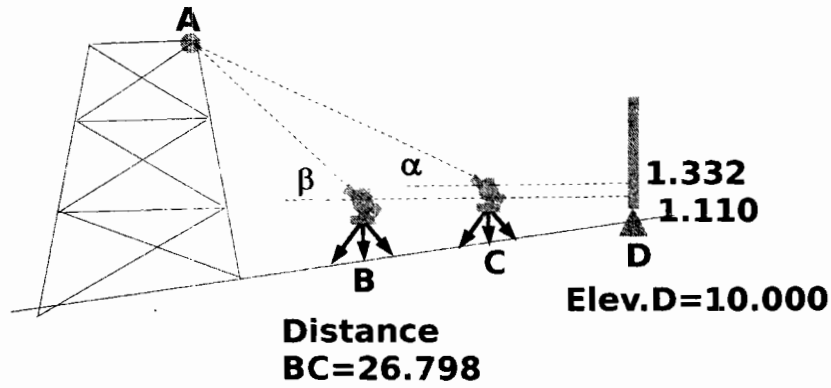


Figure 1 Telephone steel trus (not on scale)

Table 2 Angle reading

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| α | 35°33'26" | 35°34'51" | 35°36'20" | β | 50°46'45" | 50°49'37" | 50°52'33" |
| | 324°26'36" | 324°25'10" | 324°23'42" | | 309°13'18" | 309°10'52" | 309°07'25' |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Answer

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4. Given Bearing AB = N 50°15'00"E and Bearing EP = S 49°43'00"E, calculate angular error and bearing of each lines. (25 marks)

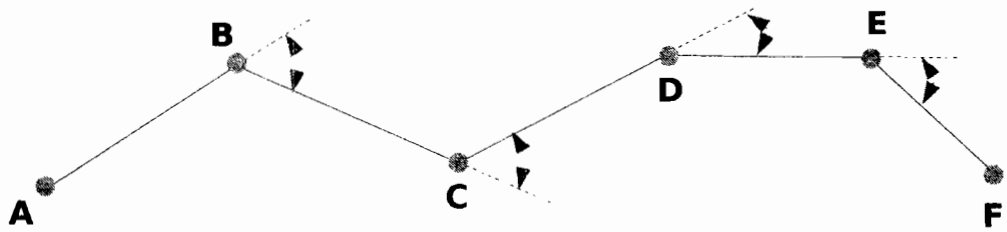


Figure 2 Stations data

Table 3 Angle measurements

| Station | Round | L | R |
|---|---|---|---|
| B | 0 | 00° 00' 02" | 180° 00' 12" |
| | | 21° 06' 10" | 201° 06' 12" |
| | 1 | 40° 37' 40" | 220° 37' 42" |
| | | 61° 43' 50" | 241° 43' 54" |
| C | 0 | 155° 02' 54" | 335° 02' 56" |
| | | 181° 45' 24" | 01° 45' 20" |
| | 1 | 85° 40' 02" | 265° 40' 05" |
| | | 112° 22' 33" | 292° 22' 30" |
| D | 0 | 90° 05' 03" | 270° 05' 07" |
| | 1 | 126° 07' 13" | 306° 07' 13" |
| | 6 | 306° 18' 03" | 126° 18' 06" |
| | 12 | 162° 31' 06" | 342° 31' 08" |
| E | 0 | 130° 42' 44" | 310° 42' 45" |
| | 1 | 180° 18' 54" | 00° 18' 55" |
| | 12 | 05° 56' 42" | 185° 56' 44" |

Answer

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5. Calculate elevation of BM2, if elevation of BM1 is 100.000 m. (25 marks)

Table 4 Levelling Data

| STA | BS | FS |
|---|---|---|
| | UPPER | UPPER |
| | MIDDLE | MIDDLE |
| | LOWER | LOWER |
| BM 1 | 1.488 | |
| | 1.358 | |
| | 1.248 | |
| TP 1 | 1.532 | 1.[illegible] |
| | 1.[illegible]13 | 1.[illegible]13 |
| | 1.320 | 1.209 |
| TP 2 | 1.713 | 1.458 |
| | 1.597 | 1.380 |
| | 1.480 | 1.264 |
| TP 3 | 1.495 | 1.430 |
| | 1.383 | 1.323 |
| | 1.271 | 1.211 |
| TP 4 | 1.486 | 1.498 |
| | 1.379 | 1.39[illegible] |
| | 1.270 | 1.282 |
| TP 5 | 1.455 | 1.469 |
| | 1.341 | 1.360 |
| | 1.227 | 1.259 |
| TP 6 | 1.485 | 1.[illegible]15 |
| | 1.349 | 1.331 |
| | 1.234 | 1.218 |
| TP 7 | 1.670 | 1.[illegible]70 |
| | 1.526 | 1.672 |
| | 1.379 | 1.570 |
| BM 2 | | 1.050 |
| | | 3.887 |
| | | 3.725 |

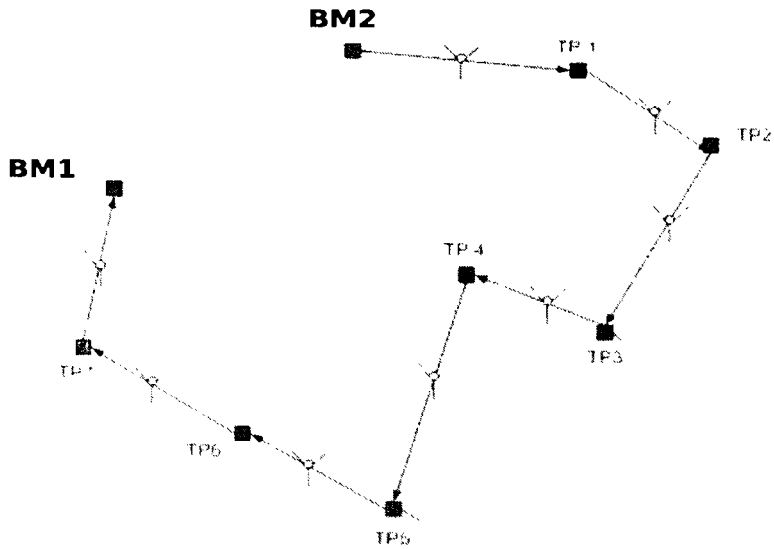


Figure 3 Leveling Map

Answer

Name_____Surname_____Student ID_____Seat number_____