BENHA UNIVERSITY
FACULTY OF ENGINEERING _SHOUBRA
SURVEYING DEPARTMENT
SURVEYING I A

SEMESTER ONE
FIRST YEAR
2014 – 2015

Assignment (4)

1. Write short notes on the following:

   a) Closed and unclosed traverse.   c) Whole circle and reduced bearings.

   b) For and back bearing of line.   d) Magnetic and true meridian.

2. Convert the following whole circle bearings to quadrantal bearings.
   a) 170° 12'   c) 327° 24'
   b) 211° 54'   d) 22° 30'

3. Convert the following quadrantal bearings to whole circle bearings.
   a) S 68° 06' W   c) N 12° 24' E
   b) S 31° 36' E   d) N 05° 42' W

4. The following are the observed fore bearings of the lines. Find their back bearings.
   a)   AB = 260° 30'   d) QR = N 86° 12' W
   b)   BC = 12° 24'   e) RS = N 18° 00' E
   c)   CD = 119° 48'   f) ST = S 59° 18' W

5. Assume the magnetic bearing of line AB read in 1978 was N 26° 15' E. The declination at the time and place was 7° 15' W. In 2014 the declination was 4° 40' E. The magnetic bearing in 2014 is needed.

6. A line AC had the magnetic azimuth of 67° 15' in 2014. If the magnetic declination was found to be 21° 30' E by interpolation from an isogonic chart dated 2004 with an annual change of westward, determine the true azimuth of line AC.

7. Supply the missing quantities in the table below.

	Column 1	Column 2	Column 3
Magnetic WCB	60°	230°	....
True WCB	....	221°	166°
Magnetic declination	10° west	....	4° west

8. The following are the bearings taken on a closed compass traverse. Compute the interior angles and correct them for observational errors.

Line	F.B	B.B
AB	S 37° 30' E	N 37° 30' W
BC	S 43° 15' W	N 44° 15' E
CD	N 73° 00' W	S 72° 15' E
DE	N 12° 45' E	S 13° 15' W
EA	N 60° 00' E	S 59° 00' W

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9. The following values are bearings for a closed traverse AB = N 44° 47' E, BC = S 63° 36' E, DA = N 72° 52' W and the deflection angle at C= 40° 44' R. Compute the following:
   a) Deflection angle at B.
   b) Bearing of line CD.
   c) Interior angle at B.

10. In a closed traverse ABCDEA, the bearing of BC and ED are 243° 00' and 271° 30' respectively. The interior angles are as follows: < A = 101°; < B = 136° 30'; < C = 127°; < D = 81°30'; and < E = 94°. Compute the bearings of all other lines.

11. The following deflection angles were measured in running a traverse from station A to station G: Compute the bearing of remaining lines, given the true bearing of the line AB as N 62° 20' E

Station	Included angle
B	24° 20' R
C	12° 40' L
D	36° 25' R
E	15° 20' R
F	08° 48' L

12. The following coordinates were calculated in closed traverse, correct them and compute the adjusted lengths and bearings of the traverse.

Stations	X-coordinates	Y-coordinates
A	7200.054	7640.842
B	7204.601	8103.036
C	7369.177	8001.383
D	7356.207	7759.292
A	7199.071	7640.236

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