



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)

University Examinations for 2014/2015

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIRST SEMESTER EXAMINATION FOR DIPLOMA IN BUILDING AND CIVIL ENGINEERING

SURVEYING I

Date: 2/04/2015

Time: 8.30-10.30 AM

Instructions

- *Question one is compulsory*
- *Answer any other two questions*

- Explain the two principle of surveying. (4 marks)
 - Briefly outline the FOUR objectives of surveying in Engineering Work.(4 marks)
 - Briefly describe a direct ranging surveying. (5 marks)
 - A 20m chain was found to be 6cm too long at the end of day's work after measuring 3000m. If the chain was correct before the commencement of the work, find the correct length of the line. (4 marks)
 - Describe the basic steps involved in the execution of a chain surveying. (6 marks)
 - The staff readings recorded for survey works are as follows

B.S	I.S	F.S
1.115		
	0.875	
	1.520	
1.855		0.615
	0.735	
	2.245	
	2.435	
0.725		1.715
0.41		0.305

Rule out a page of level-field book and enter the reading work out the R.Ls of all stations by Rise and Fall method if the first reading was taken on a B.M of R.L 115.925 (7 marks)

2. (a) State the three major functions of a surveyor. (3 marks)
- (b) With aid of sketch outline four instruments used in setting out of a right angle in chain surveying. (8 marks)
- (c) A road actually 2660M long was found to be 2652m when measured with a defective 30m chain. How much correction does the need? (9 marks)
3. (a) Briefly differentiate between collimation and Rise and fall methods of level. (8 marks)
- (b) Describe a metric chain by an aid of a sketch. (4 marks)
- (c) The following extract shows a page from a level book in which the entries were made and the levels reduced during rainy weather. The dashes lines indicates levels which were obliterated due to the rain.

B5	IS	F.S	RISE	FALL	REDUCED LEVEL
3.786					36.642
	-----		2.474		-----
	1.960			0.648	38.486
-----		3.560		-----	36.868
	3.698			-----	34.042
	0.670		-----		-----
-----		2.180		-----	35.560
	1.052		1.186		-----
		-----		-----	34.992

Reduce the level book completing the missing entries and carry out the necessary check. (8 marks)

4. (a) Define the following terms as use in surveying
 - (i) Cadastral survey
 - (ii) Pacing
 - (i) Reduced level
 - (ii) Line and collimation. (8 marks)
- (b) By an aid of a sketch describe a level instrument (6 marks)
- (c) Briefly describe an indirect ranging in surveying. (6 marks)

5. (a) Define the following the following terms as used in leveling surveying.
- (i) Permanent Adjustment
 - (ii) Temporary Adjustment
 - (iii) Great Trigonometric survey (G.T.S)
 - (iv) Arbitrary bench marks. (8 marks)
- (b) Explain four main objectives of doing leveling in surveying. (8 marks)
- (c) By the use of symbol illustrate the following as used in surveying drawings.
- (i) Foot bath
 - (ii) Dam
 - (iii) Stream
 - (iv) Pond (4 marks)