



**FACULTY OF ENGINEERING AND ENVIRONMENT  
DEPARTMENT OF GEOMATICS AND SURVEYING**

**Surveying II**

**EGS 2208**

**Final Examination Paper**

**This examination paper consists of 3 pages**

**Time Allowed: 3 hours**

**Total Marks: 100**

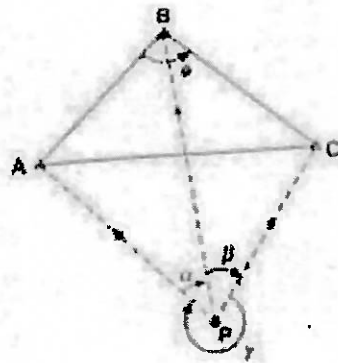
**Examiner's Name: Mr C. Musiwa**

**INSTRUCTIONS**

- 1. Answer ALL Questions**

1. Define the following terms according to the Land Survey(General) Regulations, 1979

- a. Servitude [3]
- b. Consolidated diagram [3]
- c. Beacon [3]
- d. High density Undeveloped Township [3]
- e. Property [3]
- f. Indicatory beacon [3]



2. Resecti

The coordinates of A, B and C (Figure 6.27) are: EA 1234.96m NA 17594.48m EB 7994.42m NB 24343.45m EC 17913.83m NC 21364.73m

Observed angles are:  $APB = \alpha = 61^{\circ}41'46.6''$   $BPC = \beta = 74^{\circ}14'58.1''$  Find the coordinates of P.

[20]

3. Given the following coordinates perform a coordinate comparison and produce a comparison sketch. Comment on which beacons are to be accepted and rejected.

Survey 1 DM5 50 863.599 2 236 109.7  
 Survey 2 DM5 50 863.546 2 236 109.5

Survey 1 T7 50 755.601 2 235 988.1  
 Survey 2 T7 50 755.590 2 235 987.9

Survey 1 T7x 50 752.527 2 235 992.0  
 Survey 2 T7x 50 752.506 2 235 991.9

Survey 1 PS2D 50 644.098 2 236 143.6

Survey 2 PS2D 50 644.076 2 236 143.5  
Survey 1 DD6 50 684.228 2 236 079.6  
Survey 2 DD6 50 684.179 2 236 079.5

[20]

4. Using a well labelled diagram, explain the components of a Total station [12]

b. Identify and expand on any two types of reading systems found on a theodolite. [8]

5. When operating a theodolite it is important to understand the sources of errors. Explain the instrumental errors below.

a. Eccentricity of centers [4].

b. Collimation in Azimuth [4].

c. Transit axis error [4].

d. Effect of Non verticality of instrument axis [4].

e. Vertical circle index error [4].

**END OF EXAMINATION**