NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF CONSTRUCTION MANAGEMENT

SITE SURVEYING II-BCS2201

Supplementary Examination Paper

August 2024

This examination paper consists of 3 pages
Time Allowed: 3 hours
Total Marks: 100
Examiners' Names: Mr. Shanji

INSTRUCTIONS

1. Answer Four Questions. Questions **ONE** and **TWO** are **Compulsory**.
2. Each Question Carries **25** marks.
3. Carry out all necessary checks.
4. Untidy work will be penalised.
5. Diagrams drawn should be labelled clearly.

REQUIREMENTS

1. A non- programmable scientific calculator

MARK ALLOCATION

QUESTION	MARKS
1.	**25**
2.	**25**
3.	**25**
4.	**25**
5	**25**
TOTAL	**100**

QUESTION ONE

a) Describe in detail, with the illustration of diagrams, the layout of a circular curve in Route Location Surveys.

[7]

b) The centre line of two straights is projected forward to meet at a point PI, the deflection angle being 30^0. If the straights are to be connected by a circular curve of radius 200m, tabulate all the setting out data, assuming 20m interval along the long chord on a through chainage basis. The chainage on PI being 2 + 259.59.

[18]

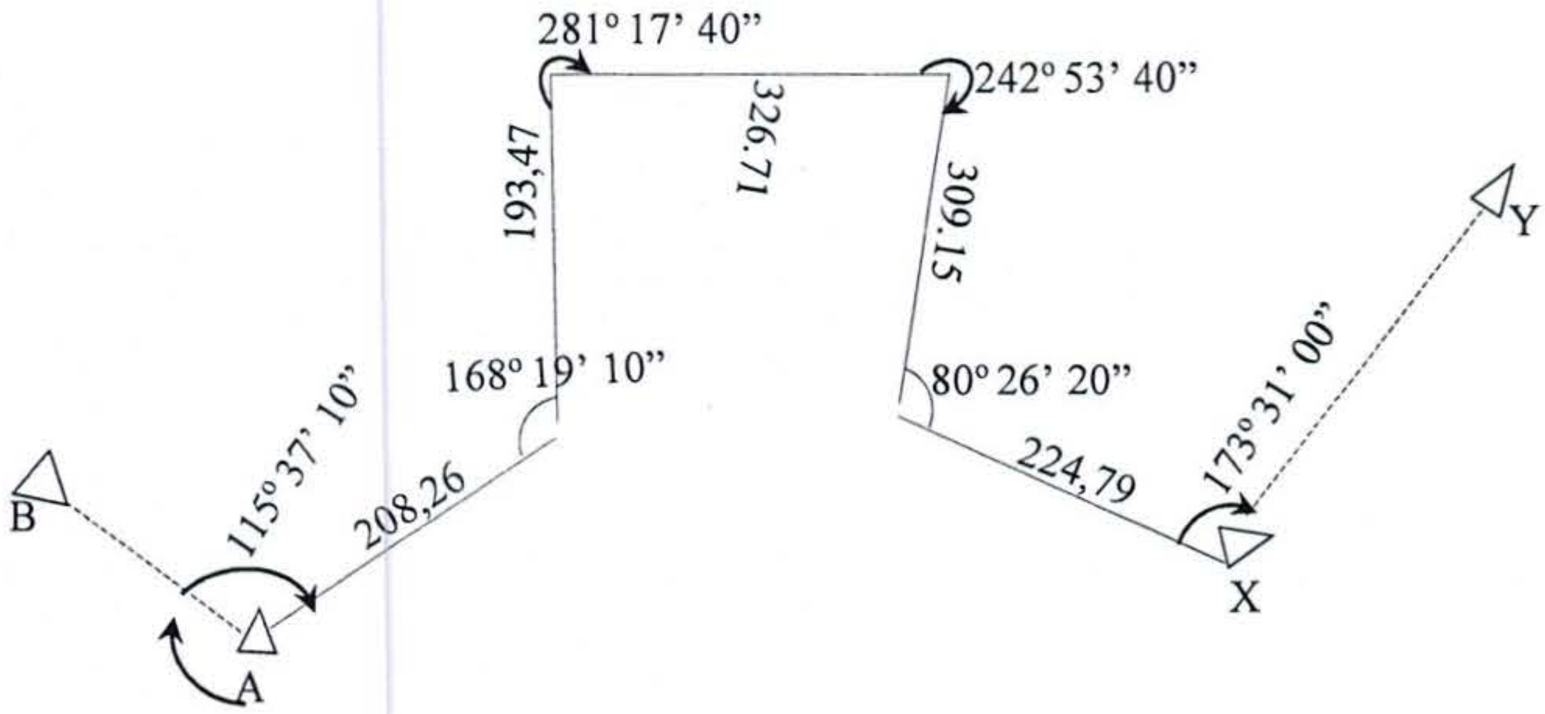
QUESTION TWO

a) Write brief notes on the following terms as they are used in Surveying.

a. Reconnaissance
b. Trig beacon
c. Triangulation
d. Traverse
e. Site plan

[5]

b) A link Traverse was done between station A and X as shown on a diagram below. The coordinates of control between are also shown below. Calculate the coordinates of the following between 1; 2; 3; 4 and X. Make a comment on the coordinates of X.



Point	Ym	Xm
A	- 1769.15	+ 2090.74
B	- 1057.28	+ 2492.39
X	- 2334.71	+ 1747.32
Y	- 2995.85	+1616.19

[20]

QUESTION THREE

a) List five areas of GIS application **[5]**

b) Discuss the main components of a GIS **[20]**

QUESTION FOUR

a) Explain the key responsibilities of an Engineering Surveyor on a construction project. **[5]**

b) Describe the procedure for setting up a Theodolite over a peg. **[5]**

c) Describe in detail the basic three methods of controlling verticality of a Multi-storey building **[15]**

QUESTION FIVE

a) Define deformation monitoring/survey and explain its importance in monitoring the movement of different types of structures both during and after completion of construction.

[10]

b) The City of Harare is seriously having a challenge to provide safe drinking water and the city Fathers are planning to build a big dam in the mountainous Mazowe area. As a Construction Manager you have been assigned to head this Major project of constructing a new dam. You have been told that before construction commences a network of points to monitor the movement of a dam wall at a later has to be constructed on the dam wall and on the crown, in order to monitor the movement of the dam wall as it fills up. Using the guidelines and your knowledge of deformation survey describe fully how you would execute the project to monitor the horizontal and vertical movements of the dam during and after construction. In your discussion include diagrams to support your answer.

[15]