BANGLADESH UNIVERSITY OF PROFESSIONALS
Military Institute of Science and Technology
B.Sc. in Environmental, Water Resources, and Coastal Engineering,
Term Final (Fall) Examination 2021: Jan-Feb 2022

Student Group: 0 < Earned Credit Hours ≤ 36

Subject: EWC–103, Surveying

Time: 3.00 hours **Full Marks: 240**

INSTRUCTIONS:

a. Use **SEPARATE** answer scripts for each section.
b. **Question-1** in **Section-A** and **Question-5** in **Section-B** are compulsory
c. Answer any other **TWO** questions out of **THREE** from each section.
d. Figures in the margin indicate full **marks**.
e. Assume reasonable data if necessary.
f. **Symbols** and **abbreviations** used have their usual meanings.

SECTION-A

Question 1 (Compulsory)

a. What is surveying in civil engineering perspective? Describe in brief the purposes of surveying. **05**

b. Define geodetic survey. Briefly describe the classification of survey based on the objective of surveying. **05**

c. What do you mean by precision? As a surveyor, how do you achieve accuracy in your survey works in the field? **05**

d. Define survey stations used in chain survey. Describe the different types of survey stations used in chain survey. **05**

e. What is Plane Table Survey or Plane Tabling? Write short notes on the followings: **05**
   i. Alidade
   ii. Trough Compass

f. What do you mean by drone survey? Describe in brief the purposes of drone survey. **05**

g. What is astronomical survey? Describe the longitude and latitude that are used to locate the position of an object on the earth's surface. **05**

h. What is project survey? What are the types of surveys you are going to suggest for an engineering construction project and why? **05**

Question 2

a. What is scale of a map and a plan? Describe the different types of scales used in surveying. How you are going to choose a scale for your plan after field survey? **08**

b. What is a planimeter? Find out the shrunk scale and original area of an old survey plan; where area measured is now 150.50 sq cm and the scale of plan was 1 cm=10 m. Later after checking, it is found that the old survey plan was shrunk in such a way that a line origin 10 cm long, now measures 9.5 cm only. **08**

c. What do you mean by the calibration of surveying equipment? Describe the process of calibration of survey equipment. As a surveyor, how you are going to adjust your survey chain if it is found to be short?

d. What is linear measurement in survey? Describe the different methods of linear measurement in the survey.

e. How do you define closing error in traverse survey? Write down the reasons of errors in the measurement of angles in traversing. Describe the methods of adjustment of closing errors in closed traverse by graphical methods.

Question 3

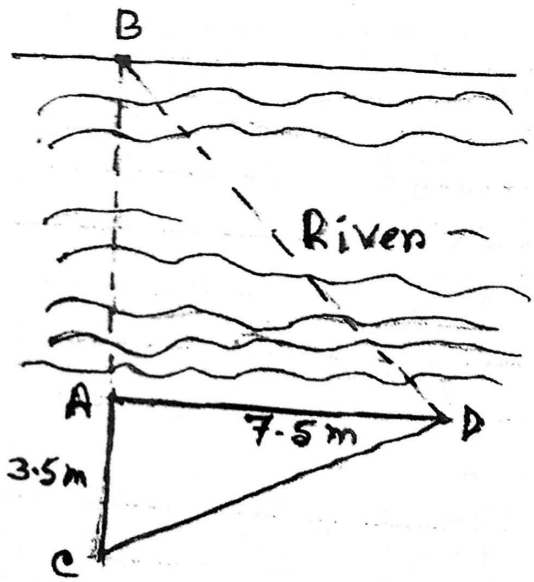
a. What do you mean by the orientation in plane table survey? Describe the different methods of orientation of plane table in plane table survey. 0

b. Define photogrammetric surveying. Describe in brief the application of photogrammetry in photogrammetric surveying. 08

c. What is GPS? Describe the methods of GPS measurements utilized by the surveyors in civil engineering survey. 08

d. Write short notes on the followings: 08
   i. Bangabandhu Satellite-1
   ii. Celestial sphere
   iii. Equator
   iv. Prime meridian

e. During chain survey, chain line has to stop at point A, because of river and can not continue chaining of point B; on the other side of the river. Point C is located on the home bank along the chain line and is measured 3.5 m. At point A, a perpendicular AD is drawn and is measured 7.5 m. At point D, magnetic bearings of BD and DC are 315° and 225° respectively. Find out the obstructed distance AB. 08



Question 4

a. What is ranging in chain survey? Describe the methods of ranging when both ends of chain line are visible and also when the both ends of the chain line are not inter-visible in chain survey. 08

b. What is equinox and solstice in astronomical survey? Describe how the equinox and the solstice have the influence in the seasonal change on the earth's surface. 08

c. What is GIS? Describe the different types of GIS data used in GIS analysis. 08

d. What is RS system? Describe with diagram, the process of RS system. What will be the ultimate output of a RS system. 08

e. What do you mean by the overlapping of the vertical aerial photograph? Write down the different reasons of overlapping of vertical aerial photographs. Derive an equation for the number of aerial photographs required to cover a given area on ground. 08