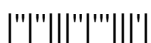**II B. Tech I Semester Supplementary Examinations, July - 2022**
SURVEYING AND GEOMETRICS
(Civil Engineering)

Time: 3 hours　　　　　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 70

Answer any **FIVE** Questions each Question from each unit
All Questions Carry **Equal** Marks
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1　a)　Convert the following whole circle bearings to quadrantal bearings.　　　[7M]
　　　　(i) 350^0 12'　(ii) 117^0 24'　(iii) 68^0 51'　(iv) 212^0 04'
　　b)　A 30 m tape measures 29.985 m when supported at the two endsonly, with the　[7M]
　　　　temperature at 30 ^{0}C and a tension of 70 N. the tape weighs 12N and has a cross-
　　　　sectional area of 0.04 cm^2. If the field temperature is also 30 ^{0}C, what tension should
　　　　be applied so that the tape measures exactly 30m when supported at the two ends.

Or

2　a)　Write the difference between whole circule bearing and Quedratu bearing with are　[7M]
　　　　example problem.
　　b)　What detailed instructions would you give to a fresh trainee surveyor regarding the　[7M]
　　　　care and use of his field book for recording survey measurements?

3　a)　List the objectives of surveying and write the various surveying accessories.　　[7M]

　　b)　Describe various methods of contouring. Discuss the merits and demerits of each.　[7M]

Or

4　a)　What is profile leveling? Describe the procedure for conducting profile level-ling of　[7M]
　　　　a proposed highway.
　　b)　The width of a certain road at formation level is 10m with a side slope of 1 in 1　[7M]
　　　　forcutting and 1 in 2.5 for filling. The original ground has a cross-fall of 1 in 4. If
　　　　the depth of excavations at the centerline of the section is 0.6m, calculate the area of
　　　　the cross-section in cut and fill.

5　a)　Define the terms:　　　　　　　　　　　　　　　　　　　　　　　　　　[7M]
　　　　　　(i)　　Face right and face left observations
　　　　　　(ii)　　Swinging the telescope.
　　b)　Explain how you would measure with a theodolite the horizontal angle byrepetition　[7M]
　　　　method?

Or

6　a)　Can you use a theodolite as a leveling instrument? Discuss?　　　　　　　　[7M]

　　b)　What are the different types of horizontal circular curves? How would youselect the　[7M]
　　　　most suitable type for a particular site?

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7 a) The stadia readings with horizontal sight on a vertical staff held 50m away from a   [7M]
        tacheometer were 1.284 and 1.780. The focal length of the object-glass was 25cm.
        The distance between the object-glass and turn-on axis of thetacheometer was 15cm.
        Calculate the stadia interval?
   b) How would you select a suitable peg interval for a circular curve?   [7M]

Or

8 a) What is GPS? Explain the role of GPS in modern surveying methods.   [7M]

   b) Briefly describe the applications of GIS. Discuss how closely GIS is related   [7M]
        toremote sensing.
9 a) Differentiate between triangulation and traversing.   [7M]
   b) List out the modern surveying methods. Discuss the need fora total station and its   [7M]
        advantages over other methods.

Or

10 a) Explain how stereoscopic plotting instruments help in the preparation of maps of   [7M]
        high precision from aerial photographs and errors in aerial survey.
    b) Explain the Following: (i) Flight planning   (ii) mosaics   iii) map substitutes   [7M]

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