* First question is compulsory - attamp any 4 from remainin

प्रथम प्रश्न अनिवार्य है, बाकी में से कोई 4 कीजिए :-

Q.1. विभिन्न प्रकार के tape correction को समझाइए ? ⑤

Q.2. निम्न Whole circle bearing को Quadrantal bearing में
बदलिए ? ②½

(A.) 12°20'   (B.) 92°40'   (C.) 195°30'   (D.) 300°30'

(निम्न पूर्णवृत दिकमान को चतुर्यांश (समानीत) दिकमान में
बदलिए ?

Q.3. निम्न समानीत दिकमान को पूर्णवृत दिकमान में बदलिए ?
Convert the following quadrantal bearing to
whole circle bearing. ②½

(A.) N50°30'E   (B.) S90°30'E   (C.) S20°30'W   (D.) N50°W

Q.4. Explain the principles of surveying?
सर्वेक्षण के सिद्धान्त को समझाइये । ②½

Q.5. एक रेखा में किसी पर दो बिन्दुओं को Ranging करने की प्रक्रिया
समझाइए जबकि दोनों बिन्दु आपस में R एक-दूसरे को दिखाई
ना दें ? ②½

Q.6. एक लाइन की वास्तविक दिकपात ज्ञात कीजिए जबकि उस लाइन
की चुम्बकीय दिकमान 212°34' है तथा चुम्बकीय दिकपात 2°12'W
(पश्चिम) है ? ②½

(Shivdayal Singh Rathore)

(1) Tape correction are following type :-

a) Correction for pull :-

When a tape is pulled by a pull force more than its standard pull force, than length of tape is increased. Hence actual length is less, so in that
(measured)
case correction for pull was applied, which is always positive (+ive) because measured length is less.

$$C_p = \text{correction for pull}$$

$$C_p = \frac{(P - P_0)L}{AE}$$

$P = $ Pull applied during measurement (N)
$P_0 = $ Standard pull (N)
$L = $ measured length (m)

(b) Correction for temperature :-

If the temperature in the field is more than the temperature at which the tape was standardised, the length of the tape increased, than measured distance become less and the correction is additive.

$$C_t = \alpha (T_m - T_0) L$$

$\alpha = $ coefficient of thermal expansion
$T_m = $ mean temperature during measurement
$T_0 = $ temperature during standardisation of tape.

(c.) Correction for sag :-

When the tape is stretched on supports between two points, it takes the form of a horizontal catenary. The horizontal distance less than the distance along the curve.

Sag correction always negative.

$$C_s = \frac{l(w)^2}{24\,n^2\,p^2}$$

n = no. of span
p = pull applied
w = total weight of the tape. $(w.l)$
l = total length of the tape.

(d.) Correction for slope :-

The distance measured along the slope is always greater than the horizontal distance and hence the correction is always subtractive.

$$C_s = \frac{h^2}{2L}$$

(e.) Correction to mean sea level :-

This correction is always subtractive.

$$C_{msl} = \frac{Lh}{R}$$

(f) Correction for absolute length :-

If actual length of tape is not equal to its designated length, than a correction will have to be

applied to the measured length of line.
Correction may be additive and subtractive depends
of on condition.

Correction may be applied as :-

true × true = false × false

actual correction × designated = Correction per tape
length of tape   length × measured
length of line

$$Ca \times l = C \times L$$

$$\boxed{Ca = \frac{LC}{l}}$$

Ans. 2 :-

W.C.B.

(A) 12°20'

(B) 92°40'

(C) 195°30'

(D) 300°30'

Q.B.

N12°20'E

S87°20'E

S15°30'W

N59°30'W

Ans 3 :-

Q.B.

(A.) N50°30'E

(B) S90°30'E

(C) S20°30'W

(D) N50°W

W.C.B

50°30'

89°30'

200°30'

310°0'

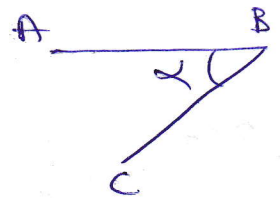**Ans 4** There are following two types of principles of surveying:-

1. To work from whole to part
2. To locate a point by at least two measurements

(1.) The main idea of working from whole to part is to localise the errors and prevent their accumulation. If we work from part to whole, than the errors accumulate and expand to a greate magnitude in the process of expansion of survey. and survey become uncontrolled at the end. so we use only whole to part concept for survey work.
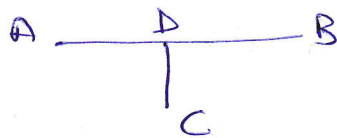
(2.) In this principle two control points are selected in the area and the distance between them is measured accurately.

example :- Let A and B be the two control points, whose position are already known. The position C can be plotted by any of following method :-
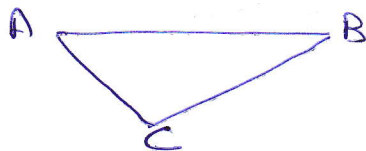
1. By measuring distance BC and angle ∝

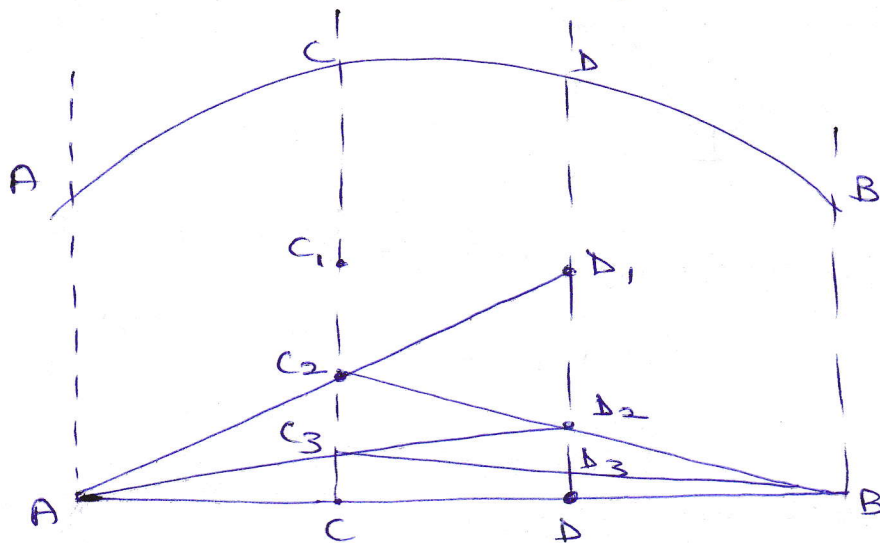2. By dropping a perpendicular from C or line AB and measure AD, CD or BD or CD.

3. By measuring the distance AC and BC.

Q-5   To lay out a line with two inaccessible points on a sand dune, we use indirect ranging method.
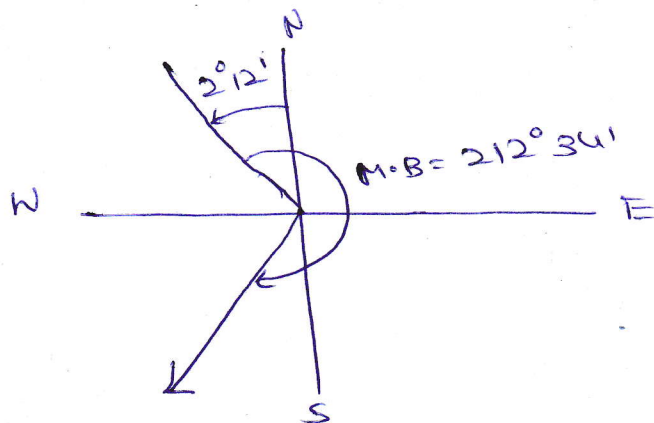
. Process:-

1. Let A and B be the two end stations of a line with a rising ground between them and C and D the two intermediate points to be established on the chain line.

2. The two chainmen stand at C_1 and D_1 such that the chairmen at C_1 can see both the ranging rods at D_1 and B and the chairmen at D_1 can see both the ranging rods at C_1 and A.

3. Now the chairmen at D_1 direct the chairman at C_1 to move to C_2 so as to be in line with A.

4. Then the chairman at C_2 direct the chairmen at D_1 to move to D_2 so as to be in line with B.

5. By successively directing each other, the two chairmen proceed to the line AB and finally come at C and D exactly in the line AB.

6. C and D are the required intermediate points between A and B.

Ans:- 6

True Bearing (T.B.) = M.B. - θ (declination)

$$T.B. = 212°34' - 2°12'$$

$$\boxed{T.B. = 210°22°}$$

IInd Mid-term

Branch: Civil Engg.   Subject Code : CE-206

Do any two questions given below.

Q 1: Atterberg की सघनता सीमाओं को विस्तार से समझाइयें तथा उनके उपयोग लिखिए।

Q 1: Explain Atterberg's consistency limits in detail along with diagrams required. Write down various uses of consistency limits.

Q 2: निम्न मदों के बारें में संक्षेप में लिखें:–
   a. प्रवाह सूचकांक
   b. दृढता सूचकांक
   c. अससंजक मृदा का आपेक्षिक घनत्व
   d. शिपफुट रोलर

Q 2: Write short note on the following:

 a) Flow Index.

 b) Toughness Index.

 c) Relative density of granular soil.

 d) Sheep foot roller.

Q 3: कुटाई व दृढीकरण में अंतर स्पष्ट कीजीए। कुटाई के मृदा गुणों पर विभिन्न प्रभावों के बारे में विस्तार से लिखें।

Q 3: Differentiate between compaction and consolidation. Write in detail about effects of compaction on soil properties.

<u>किन्ही तीन प्रश्नों का उत्तर दीजिए</u>   M.M-15

Q.1 कंक्रीट की शुकार्यता को प्रभावित करने वाले कारकों को समझाइए |

Q.2 कंक्रीट की तराई करने की विभिन्न विधियों के बारे में बताइए |

Q.3 विभिन्न प्रकार के निर्माण जोड़ों को समझाइए |

Q.4 निम्न पर संक्षिप्त टिप्पणी कीजिए| (a) कंक्रीट बैचिंग (b) कंक्रीट का सहनन (c) पृथक्करण (d) घाण मिश्रक (e) उत्शवण