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SUBJECT CODE :41

FACULTY OF ENGINEERING AND TECHNOLOGY

S.E. (Civil) Examination Nov/Dec 2015

Surveying - II

(Revised)

[Time: Three Hours] **[Max. Marks: 80]**

"Please check whether you have got the right question paper."

N.B
i) Q.1. And Q. 6 is compulsory.
ii) Answer any two questions from remaining, each section.
iii) Figures the right indicate full marks.
iv) Assume suitable data if necessary.

Section – A

Q1. Answer the following (Any five) 10

1) Give the classification of triangulation system.
2) What is the principle of Triangulation?
3) What do you mean by signals and towers.
4) Differentiate between sun signals and Night signals.
5) Mention various Rinds of errors in surveying
6) What is meant by base net?
7) Give the formulae for the correction to be applied to cylindrical signals.

Q.2 a) Define :- 08

1) Independent quantity
2) Conditioned quantity
3) Weight of an observation
4) Most probable value

b) Find the most probable values of the angles A and B from the following observation of station o 07

A = $9^{o}\ 48'36''$ weight 2

B = $54^{o}\ 37'\ 48''$ weight 3

A + B = $104^{0}\ 2'^{1}28''$ weight 4

Q.3 a) What is meant by a satellite station and reduction to center? Derive expression for reducing the angles measured at the satellite station to center. 08

b) What is figure adjustment in case of triangulation survey. Explain in detail. 07

Q.4 a) State and explain Laws of weights. 08

b) The following values were recorded for a triangle ABC the individual measurement being uniformly precise. 07

A = $62^{0}\ 28'\ 16''$: 6 observations

B = $56^{o}\ 44'\ 36''$: 8 observations

C = $60^{o}\ 45'\ 50''$: 6 observations

Find the correct values of the angles.

Q.5 Write short note on (Any three) 15

1) Base Line Measurements
2) Method of correlates
3) Spherical excess
4) Method of least squares

Section – B

Q.6 Answer the following (Any five) 10

1) Enlist the element of simple circular curve mathematically.
2) Define degree of curve.
3) Express mathematical expression of apex distance in curves.
4) What is meant by shift curve.
5) Differentiate between EDN and total station.
6) What is trignometrical leveling
7) How does the measurement of distance with an END instrument different from the conventional taping?

Q.7 a) What do you understand by the following forms of curve and where are they generally used? 08

1) Lemmniscate curve
2) Compound curve
3) Reverse curve
4) Vertical curve

b) Two tangents AB and BC intersect at B, another line DE intersect AB & BC at D and E such that $\angle$ ADE = 150^{o}& 07

$\angle$ DEC=140^{o} the radius of the first curve is 200m and that of second is 300m. Calculate all the data necessary for setting out the compound curve.

Q.8 a) Explain fundamental measurements in total station. 07

b) Explain Modulation in E. D. M. 08

Q.9 a) State the properties of electromagnetic waves. 07

b) Find the R.L of Q from the following observations : 08

Horizontal distance between p and Q = 9290m. angle of elevation from

P to Q = $2^{o}\ 06'\ 18''$

Height of signal at Q = 3.96m

Height of instrument at P = 1.25m.

Coefficient of refraction = 0.07

R sin $1''$ = 30.88m, R.L of P = 400m

Q.10 Write short note on : (Any three) 15

1) Ideal transition curve
2) Axis signal correction
3) Phase comparison
4) Shift Of curve
5) Super elevation