Day: Tuesday   Time: 10.00 AM TO 01.00 PM
Date: 28/05/2019   Max. Marks: 80

S-2019-3010

N.B:

    1)   **Q. No.1** and **Q. No.5** are **COMPULSORY**. Out of remaining questions attempt **ANY** TWO questions from each section.

    2)   Figures to the right indicate **FULL** marks.

    3)   Answer to both the sections should be written in **SAME** Answer book.

    4)   Use of non programmable **CALCULATOR** is allowed.

    5)   Draw neat diagram **WHEREVER** necessary.

    6)   Assume suitable data if necessary.

SECTION-I

Q.1 **a)** Explain the procedure of profile leveling. **(05)**

    b) Describe the procedure of prolonging a survey line using transit theodolite. **(05)**

    c) State and explain adjustment of altitude bubble of transit theodolite. **(04)**

Q.2 **a)** What is the effect of curvature and refraction correction in leveling? Derive the formula for combined correction. **(06)**

    b) State various permanent adjustments of level and explain two peg test. **(07)**

Q.3 **a)** Describe the Bowditch's and Transit rule for balancing the theodolite traverse. **(06)**

    b) What is trigonometrical leveling and explain various cases in trigonometrical leveling with sketch. **(07)**

Q.4 **a)** The survey data of a closed traverse is given in the table below. The length and bearing of line SP were note recorded during the survey. Calculate length and bearing of line SP. **(07)**

Line	Length (m)	Whole circle bearing
PQ	65	$62^0\ 30'$
QR	72	$172^0\ 20'$
RS	84	$225^0\ 45'$
SP	-	-

    b) Derive the expression for horizontal distance and elevation of vertically head staff from a tacheometer when the line of sight is inclined. **(06)**

SECTION-II

Q.5 **a)** Draw a neat sketch of compound curve and show the various elements on it. **(05)**

    b) What are the requirements of good transition curve? **(05)**

    c) Explain principle and working of box sextant. **(04)**

Q.6 **a)** Derive the formula for the offset length from a long chord for a simple circular curve and explain the procedure of setting out the curve. **(07)**

    b) What is reverse curve? Where it is used? Explain the elements of reverse curves. **(06)**

Q.7 **a)** Sate advantages, disadvantages and errors in plane table survey. **(07)**

    b) Explain traversing method of plane table Survey. **(06)**

Q.8 **a)** Explain the process of reconnaissance and preliminary survey for route survey. **(07)**

    b) What is two point problem in plane table survey? Explain the procedure of solving two point problem. **(06)**

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