MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Tech. (Agril. Engg.)

Semester	: **II (New)**	**Term**	: **II**	**Academic Year**	: **2016-17**
Course No.	: SWCE 121	**Title**	: **Surveying and Leveling**		
Credits	: 3 (1+2)				
Day & Date	: Friday, 05.05.2017	**Time**	: 09.00 to 11.00	**Total Marks**	: **40**

Note :
1. Solve **ANY EIGHT** questions from **SECTION "A".**
2. All questions from **SECTION "B"** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1 What do you mean by triangulation survey? Also write the suitability of chain triangulation.

Q.2 An Engineer's chain was found to be 7.5 cm too long after chaining 120 m. It was found to be 15 cm too long at the end of the day's work, after chaining a total distance of 210 m. If the chain was correct before the commencement of chaining. Find the true distance.

Q.3 The following perpendicular offsets were taken at 3 m intervals from a chain line to a curved boundary: 2.16, 1.53, 1.80, 1.98, 1.80, 1.59, 1.80, 2.10, 2.52, 2.43, 2.40, 2.58, 2.70, 2.91 and 3.06 m. Compute the area enclosed between the chain line, the curved boundary and the first and last offsets by (a) Trapezoidal and

(b) Simpson's Rule.

Q.4 List the instruments used for setting right angle and also discuss about optical square with diagram.

Q.5 Following are the bearing of line AB and AC.

i) AB N $15^0 15'$ E
AC N $87^0 10'$ E

ii) AB N $12^0 24'$ E
AC S $52^0 30'$ E

iii) AB S $58^0 50'$ E
AC S $22^0 45'$ W

iv) AB $339^0 35'$
AC $160^0 40'$

Calculate the angle BAC in each case.

Q.6 a) Discuss the steps of chain survey executed in the field.

b) Classify the leveling on the basis of principle of working.

Q.7 What is Plane Tabling? Write the methods of plane tabling, its advantages and limitations.

Q.8 The following consecutive readings were taken with a level and 4 m leveling staff on continuously sloping ground at a common interval of 30 m 0.585 on A, 0.936, 1.953, 2.846, 3.644, 3.938, 0.962, 1.035, 1.689, 2.534, 3.844, 0.956, 1.579, and 3.016 on B.

The elevation of 'A' was 520.450m. Make up a level book and apply the usual checks. Determine the gradient of line AB.

(P.T.O.)

Q.9 Define contouring; write its use and characteristics, also state the methods of locating contour lines.

Q.10 a) State the methods of computation of volume.

b) Discuss the steps for setting Theodolite over station.

SECTION "B"

Q.11 State True or False.

1) The revenue chains are 100 feet long and divided in 100 links.

2) Plumb Bob is used for testing the verticality of ranging rod.

3) The running of check line is necessary in traverse survey.

4) The horizontal distance between any two consecutive contours is known as the horizontal equivalent.

Q.12 Define the following terms.

1) Ranging

2) Reconnaissance

3) Magnetic meridian

4) GTS bench mark.

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