Registration No : | | | | | | | | | | |

Total Number of Pages : 02 **B.Tech**
PECI5303

5th Semester Back Examination 2019-20
SURVEYING – II
BRANCH : CIVIL
Time : 3 Hours
Max Marks : 70
Q.CODE : HB073

Answer Question No.1 which is compulsory and any FIVE from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions :** **(2 x 10)**

a) Write two advantages of Tacheometry.
b) State difference between right hand curve and left hand curve.
c) Write arc definition of degree of curve.
d) Define compound curve.
e) State functions transition curve.
f) What are the fundamental quantities measured using total station.
g) Define well-conditioned Triangle.
h) Write the methods for marking building corner.
i) Define survey grid used in setting out of work.
j) Define most probable value of an error.

Q2 **a)** Describe the process for determination of Tacheometric constants. **(5)**

b) A vertical staff is observed with a horizontal external focusing telescope at a distance of 112.870 m. Measurements are recorded as : **(5)**
Objective to diaphragm= 210 mm, objective to vertical axis= 140 mm
If the readings are taken on the staff were 1.050 m, 1.610 m, 2.170 m, calculate the distance between stadia lines and Tacheometric constants.

Q3 **a)** Describe in detail about two linear methods for setting out of simple circular curves. **(5)**

b) On a railway track of 1.68m width, the design speed is 90km/h. Transition curves are to be provided to join a circular curve with a radius of 500m between straights of the track. If the change of radial acceleration is limited to 0.3 m/sec^3, determine the following: **(5)**
1. Length of transition needed 2. Shift of circular arc 3. Theoretical super elevation required at the curve

Q4 **a)** Write note on Classification of triangulation system. **(5)**

b) Two Triangulation stations A and B are 60 km apart and the elevation of A is 240 m and that ground at B is 280m. Find the minimum height of a signal required at B so that the line of sight may not pass near the ground than 2.0 m. Assume elevation of intervening ground as uniform 200m. **(5)**

Q5 **a)** The measured radius is 86.6 m and is in error by 0.025. What is the error in computed area? **(5)**

b) The distance between two points A and B was measured 12 times under identical conditions, and measured values were recorded as: **(5)**

63.48, 63.45, 63.42, 63.44, 63.48, 63.45

63.43, 63.44, 63.47, 63.46, 63.43, 63.47

Determine the probable error of the mean.

Q6 A reverse curve is to be set out between two parallel tangents 10m apart. The distance between the tangent points measured parallel to the tangents is 80 m. If the radius of the first branch is 150m, calculate the radius of the second branch. Calculate the lengths of the two branches. What would be the equal radius of branches of the reverse curves? **(10)**

Q7 Describe about various major components and uses of total station. **(10)**

Q8 **Write short answer on any TWO :** **(5 x 2)**

a) Terrestrial Photogrammetry

b) Types of transition curves

c) Classification of triangulation system