SE | Civil | Sem IV | CBCS

13 MAY 2019

[3 Hours] Marks: 80

N.B:
- Question No.1 is **compulsory.**
- Solve **any three** questions out of the remaining questions.
- Assumptions, if any, should be clearly stated. Draw sketches wherever required.

Q 1 **(Solve Any four sub-questions. Each carries 05 marks)** (20)

a) Explain the field procedure to set out a simple circular curve by Rankine's method of deflection angles.
b) Describe the roles and responsibilities of Survey of India department.
c) Write a note on Remote Sensing and its applications in Civil Engineering.
d) Draw the format of a 7/12 Abstract and state the data mentioned in it.
e) Explain the working of a handheld GPS receiver.

Q 2 (20)

a) Two tangents intersect at a chainage 1950 m, the deflection angle being 38^0. Calculate all the necessary data for setting out a curve with a radius of 350 m by Rankine's method. Take Peg Interval as 30 m. 12

b) Two straights AB and BC intersect at a chainage of 2520 m.The deflection angle is 52^0.It is proposed to insert a circular curve of radius 340 metres between two transition curves of length 85 metres each. Calculate all the elements required to set out the curves. 08

Q 3 (20)

a) A downgrade of 2.5% is followed by an upgrade of 3.5%. The RL of point of intersection is 100 m at chainage 1100 m. A vertical curve of 200 m length is to be introduced to connect the two grades. If the peg interval is 20 m, Calculate the elevations of the points on the curve using tangent correction method. Tabulate the results. 12

b) What do you understand by setting out of a work? Explain the procedure for setting out a building. 08

Q 4 (20)

a) Explain **Any one** of the following projects in detail : 10
i) Radial contouring. ii) Profile levelling.

b) Explain stepwise procedure of collecting the data of a traverse ABCD using Total station including the initial temporary adjustments. 10

Q 5 (20)

a Mention the general and Civil Engineering specific applications of GPS. 10

b The meridian altitude of a star was observed to be $64^0 36'20''$ on a certain day, the star lying between the zenith and the equator. The declination of the star was $26^0 12'10''$N. Find the latitude of the place of observation. 05

c State the duties and responsibilities of a Tehsildar. 05

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