

Q.P. NO : 12434

(3 Hours)

[Total Marks : 80

- N.B. :** (1) Question No 1 is **compulsory**.
 (2) Attempt any **three** from the remaining questions.
 (3) Attempt **sub question** in **order** only.
 (4) Assume suitable **data** , if required and state the same **clearly**.
 (5) **Figures to right** indicate **full marks**.

1. Solve any **four** of the following. 20
- (a) Draw a neat sketch of simple circular curve & show all elements.
- (b) Explain use of computer in surveying.
- (c) Explain principles of EDM
- (d) Explain field method to determine the constant of a tacheometer ?
- (e) Differentiate between land survey and construction survey ?
2. (a) Describe the principle of tacheometry and differentiate between fixed hair method and movable hair method of tacheometry. 8
- (b) A fixed hair tacheometer fitted with an anallatic lens with instrument constant of 100, was used to determine the slope between point P & Q. The following reading were taken. If the staff was held vertically, compute the gradient from P & Q. 12

Inst. Station	Staff station	Bearing	Reading of Stadia hair	Reading of axial hair	Vertical angle
A	P	345°	0.915 2.585	1.750	+15°
	Q	75°	0.760 3.715	2.240	+10°

3. (a) What is transition curves ? Why it is provided, explain different types of transition curve. 10
- (b) Two tangents intersect at chainage 1250 m. The angle of intersection is 150°. Calculate all data necessary for setting out a curve of radius 250m by the deflection angle method. The peg intervals may be taken as 20m. 10
4. (a) What do you understand by setting out work? Explain in detail the procedure for setting out work for a building. 10
- (b) A gradient of -2.5% meets a gradient of +3.0% at a chainage of 1350 m and elevation of 140m. A vertical curve of length 200m is to be set out with pegs at 20m interval. Calculate the elevation of Pegs by chord gradient method. 10