

**GUJARAT TECHNOLOGICAL UNIVERSITY****B.E. Sem-I Remedial examination March 2009****Subject code: 110004****Subject Name: Elements of Civil Engineering****Date: 19 / 03 / 2009****Time: 10:30am To 1:00pm****Instructions:****Total Marks: 70**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q. 1 (a) Explain plane scale and diagonal scale. (4)
- (b) Enumerate various principles of planning and explain aspect and prospect in detail. (5)
- (c) Discuss objectives of watershed management and methods of its development. (5)
- Q. 2 (a) Define the following (7)
- (i) Reciprocal ranging (ii) Declination (iii) Height of instrument  
(iv) Circulation (v) Local attraction (vi) Framed structure  
(vii) Surface transportation
- Q.2 (b) (i) Discuss various types of tapes used for linear measurements. (4)
- (ii) Convert the following WCB into RB. (3)
- (i)  $190^\circ$  (ii)  $260^\circ$  (iii)  $315^\circ$

OR

- Q.2 (b) (i) A 20m chain was found to be 10 cm too long after chaining a distance of 1500m. It was found to be 18 cm too long at the end of one day's work after chaining the total distance of 3900m. Find the true distance if chain was correct before the commencement of work. (5)
- (ii) Differentiate between WCB and RB. (2)
- Q. 3 (a) Enumerate various tape corrections and explain any two in detail. (5)
- (b) Determine the value of included angles in the closed traverse ABCD in clockwise direction for the given below bearings. (5)

Line	Fore bearing
AB	$40^\circ$
BC	$70^\circ$
CD	$210^\circ$
DA	$280^\circ$

Apply necessary checks also.

- (c) Define the following (4)
- (i) Fore sight (ii) Back sight  
(iii) Reduced level (iv) Mean sea level

OR

- Q. 3 (a) The following staff readings were observed successively with a level, (8)  
the instrument having been moved after third, sixth and eight readings.  
2.225, 1.605, 0.995, 2.090, 2.865, 1.265, 0.600, 1.985, 1.045, 2.685 m  
Enter the above readings in a page of level book and calculate the reduced  
levels of all the points if the first reading was taken with a staff held on  
bench mark of 135.75 m.
- (b) Discuss various modes of transportation. (6)
- Q. 4 (a) Explain various methods and formulae to compute area and volume. (6)
- (b) Classify the buildings based upon occupancy and structure. (4)
- (c) Discuss various construction materials used in civil engineering. (4)

OR

- Q. 4 (a) Explain various obstacles in chaining and illustrate the procedure to solve (6)  
one case in each obstacle.
- (b) Describe water conveyance system. (4)
- (c) Explain characteristics of contours. (4)
- Q. 5 Write short note on *any three* (14)
- (i) Hydrological cycle  
(ii) Use of planimeter  
(iii) Methods of leveling  
(iv) Mortar and concrete  
(v) Global positioning system  
(vi) Common building components

\*\*\*\*\*