

**GUJARAT TECHNOLOGICAL UNIVERSITY****B.E. Sem-II Examination June- 2010****Subject code: 110004****Subject Name: Elements of Civil Engineering****Date: 18 / 06 / 2010****Time: 02.30 pm – 05.00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) What do you understand by scheduling of construction project? Explain. **05**  
 (b) What are the characteristics of contours? **05**  
 (c) Explain role of Civil Engineering in infrastructure development. **04**

- Q.2** (a) The following are the bearings of closed traverse. Find the included angles and draw the traverse. **07**

Line	FB	BB
AB	N 50° 00' E	S 50° 00' W
BC	S 60° 00' E	N 60° 00' W
CD	S 15° 00' W	N 15° 00' E
DA	N 70° 30' W	S 70° 30' E

- (b) A steel tape was exactly 30.00 m long at 20° C and when supported throughout its length under a pull of 9 kg. A line was measured with a tape under a pull of 14.00 kg and found to be 1800.00m. The mean temperature during the measurement was 36° C. Assuming the true length of the line, given that cross-section area of the tape = 0.05 cm<sup>2</sup>. The weight of 1 cm<sup>2</sup> of tape is 0.0087 kg. The co-efficient of expansion = 0.000012 per 1° C and the Modulus of Elasticity = 2.1 x 10<sup>6</sup> kg/cm<sup>2</sup>. Find the corrected measured length. **07**

**OR**

- (b) If primary scale is graduated to read 20 minutes, Construct a direct vernier read up to 1 minutes and show 23° 32'. **07**

- Q.3** (a) What is GPS? Explain its use in Civil Engineering field. **04**  
 (b) The following is the page of Level Book. Fill the missing data and calculate the RL of all points. Apply the usual checks **10**

Station	Chainage	BS	IS	FS	Rise	Fall	HI	RL	Remark
1	0	2.485							
2	20				1.035				
3	40		0.625						
4	60	2.450				3.175			
5	80		2.155						
6	100		1.945						
7	120	1.255		0.645					
8	140			2.450					100.00 BM
Check									

**OR**

- Q.3** (a) What are the corrections required in linear measurement? Explain any one in detail. **05**  
 (b) Advantage and disadvantage of concrete **05**  
 (c) What is local attraction in compass? How you can predict the same? **04**

- Q.4** (a) What are the test on aggregates and state its significance? **05**  
(b) Define Trapezoidal and Simpson Rule and State its limitations. **05**  
(c) Differentiate load bearing and framed structures. **04**
- OR**
- Q.4** (a) What is Planimeter? Explain its uses. **05**  
(b) Enumerate various principles of planning and explain aspect and prospect in detail. **05**  
(c) Draw neat sketch of R.C.C. lintel with chajja. **04**
- Q.5** Write Short Note on
- (a) Total Station. **05**  
(b) Error in leveling. **05**  
(c) Role of Transportation in National Development. **04**
- OR**
- Q.5** Write Short Note on
- (a) BOT Projects of Highways. **05**  
(b) Water Conveyance System. **05**  
(c) Elements of Traffic Engineering. **04**

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