

**JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY  
WAKNAGHAT**

**Makeup Examination April- 2018**  
4<sup>th</sup> Semester (Civil Engineering)

**Course Code: 10B11 CE412**  
**Course Name: Surveying**  
Course credit: 4

**Max. Marks: 25**  
**Max. Time: 1 hr30 min**

**Note: All questions are compulsory. Assume suitable data if required.**

**Q1. Answer the following:**

- (a) The distance between two points, measured with a 20 m chain, was recorded as 325 m. it was found that chain was 2 cm too long initially. Find the correct distance between points? [2]
- (b) What is the fundamental difference between plane and geodetic surveying? [1]
- (c) What is difference between base line and check line in chain surveying? [1]
- (d) How would you detect the presence of local attraction in an area? Explain with example. [1]
- (e) What is the principle of equalizing back sight and fore sight? [1]
- (f) What is the usage of plumbing fork with plumb bob? [1]

**Q2. What do you understand by offsets? How perpendicular and oblique offsets are taken?** [2.5]

**Q3. How will leveling across a large pond will be conducted?** [2.5]

**Q4. The following reading of reciprocal leveling were taken**

Inst at	Staff reading at	
	A	B
A	1.725	2.45
B	2.145	3.045

Is the instrument is in adjustment? To what reading should the line of collimation be adjusted when the instrument is at B? Find the RL of B if RL of A = 250 m. Neglect the others errors. [4]

**Q5. A steel tape was exactly 30 long at 20 °c when supported throughout its length under a pull of 10 kg. A line was measured with this tape under a pull of 15 kg and at a mean tem of 32 °c and found to be 780 m long. Compute the true length of the line if the tape was supported at every 15 m during measurement. The cross-sectional area of the tape = 0.03 cm<sup>2</sup> and its total weight = 0.693 kg. E for steel = 2.1 x 10<sup>6</sup> kg/cm<sup>2</sup>.  $\alpha$  = 11 x 10<sup>-6</sup> per °c.** [4]

**Q6. The following are the bearings taken on a closed compass traverse where local attraction was suspected. Compute the interior angles and correct them for observational errors.** [5]

Line	FB	BB
AB	74°20'	256°00'
BC	107°20'	286°20'
CD	224°50'	44°50'
DA	306°40'	126°00'