

Code No: 56096

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year II Semester Examinations, December - 2018****MINE SURVEYING-II****(Mining Engineering)****Time: 3 hours****Max. Marks: 75**

**Answer any five questions**  
**All questions carry equal marks**

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- 1.a) What do you understand by tacheometry? Discuss the errors in stadia surveying.  
 b) Determine the gradient from a point P to another point Q from the following observations made with a tacheometer fitted with an anallatic lens. The constant of the instrument was 100 and the staff was held vertical. [7+8]

Instrument station	Staff station	Bearing	Vertical angle	Staff readings (m)
R	P	130°	+10°32'	1.255,1.810,2.365
	Q	220°	+5°06'	1.300,2.120,2.940

- 2.a) Two straights AI and BI meet at a chainage of 3450m. A right handed simple circular curve of 250m radius joins them. The deflection angle between the two straights is 50°. Tabulate the necessary data to lay out the curve by Rankine's method of deflection angles. Take the chord interval as 20m.  
 b) What are the common difficulties in setting out simple curves? Describe briefly the method employed in overcoming them. [8+7]
- 3.a) How would you determine the scale of vertical photograph?  
 b) Define the following  
 i) Camera axis ii) Nodal point iii) Principal distance iv) Fiducial axis [7+8]
- 4.a) Enumerate the principal methods for determining latitude in the field of astronomy and explain any one of them. State the advantages of the method preferred.  
 b) A sun observation was made for latitude at mid-day at a place in the northern hemisphere. Its corrected latitude was 61°30'46" and the declination 21°25' N. Determine the latitude of the observer. [8+7]
- 5.a) How would you fix the location of shafts in a  
 i) Straight tunnel ii) curved tunnel  
 b) It is required to build a connection in the mine from the point 'A' at R.L of 100.00m to another point B at R.L of 55.00m. Determine the bearing, slope and length of the line AB, if the co-ordinates of A and B are as follows
- | Point | N      | E      |
|-------|--------|--------|
| A     | 891.15 | 795.42 |
| B     | 880.24 | 741.25 |
- c) What are the basic differences in mine surveying and conventional surface surveying? [7+5+3]

6.a) Define geographic information system and describe the relationship between traditional analog map and Geographic Information System.

b) Suggest possible users of a GIS and how it might benefit them. [8+7]

7.a) Describe the salient features of a total station and explain how angles are measured using it.

b) Explain what are the latest advancements in total station techniques and their significance. [7+8]

8.a) Explain the principle, construction and working of EDM equipment.

b) Write a short note on the errors in EDM. [10+5]

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