

No. of Questions	Answer all Questions	Marks															
1 (a)	A 30m Chain was tested before starting the day's work and was found to be 20cm too short. After measuring a length of 1650m, the chain was found to be 25cm too long. After measuring a length of 2000m, the chain was found to be 15cm too short. At the end of the work the chain was found to be 30.10m. Find the true length of the line if the total measured length was 4305m, on a sloping ground where the level difference between starting and ending point was 220cm.	[15]															
(b)	What are the different types of metric chain? Describe any one type of metric chain in detail with a neat sketch.	[5]															
(c)	Describe Main Station, Main Survey Line, Tie/Subsidiary Stations, Tie Line, Base Line, and Check Line with a neat sketch.	[5]															
2 (a)	The bearings of a closed traverse are given. Check whether the bearings are correct. If not, correct the bearings by <i>method of bearings</i> .	[10]															
	<table border="1"> <thead> <tr> <th>Line</th> <th>AB</th> <th>BC</th> <th>CD</th> <th>DA</th> </tr> </thead> <tbody> <tr> <td>FB</td> <td>74° 15'</td> <td>107° 15'</td> <td>224° 45'</td> <td>307° 45'</td> </tr> <tr> <td>BB</td> <td>256° 00'</td> <td>286° 15'</td> <td>44° 45'</td> <td>127° 00'</td> </tr> </tbody> </table>	Line	AB	BC	CD	DA	FB	74° 15'	107° 15'	224° 45'	307° 45'	BB	256° 00'	286° 15'	44° 45'	127° 00'	
Line	AB	BC	CD	DA													
FB	74° 15'	107° 15'	224° 45'	307° 45'													
BB	256° 00'	286° 15'	44° 45'	127° 00'													
(b)	Explain Fore bearing and Back bearing of a survey line in detail with a neat sketch with respect to WCB and RB systems.	[5]															
(c)	Write the steps involved in removing the error due to Local Attraction by method of <i>included angles</i> .	[10]															
3 (a)	Following are the included angles of a traverse. Fore Bearing of line BC is 131°15'. Find out the bearings of the other lines, assuming the work is done in an anti-clockwise direction.	[10]															
	<table border="1"> <thead> <tr> <th>Angle</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>Included Angle</td> <td>78°36'</td> <td>101°24'</td> <td>96°45'</td> <td>83°15'</td> </tr> </tbody> </table>	Angle	A	B	C	D	Included Angle	78°36'	101°24'	96°45'	83°15'						
Angle	A	B	C	D													
Included Angle	78°36'	101°24'	96°45'	83°15'													
(b)	Describe Reduced Level, Benchmark and Datum.	[5]															
(c)	Write the steps involved in balancing a traverse by the graphical method of Bowditch's rule.	[ 10 ]															

4 (a)	With a neat sketch describe the <i>two types of traverse</i> . Describe Latitude and Departure with the help of a neat sketch.	[10]
(b)	With a neat sketch describe the <i>Method of Traversing</i> in plane table surveying.	[5]
(c)	What is ranging? Describe reciprocal ranging with the help of a neat sketch.	[5]
(d)	What is slope correction? Derive the expression for slope correction with a neat sketch.	[5]