

SE (CIVIL) / SEM IV | R-19 | SUR | 23.05.22

QP Code 93582

University of Mumbai

Examination First Half 2022

Examinations Commencing from 17<sup>th</sup> May 2022 to 30<sup>th</sup> May 2022

Program: Civil Engineering

Curriculum Scheme: R-2019 'C' Scheme

Examination: SE Semester: IV

Course Code: CEC403 and Course Name: Surveying

Time: 2hour 30 minutes

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	A survey is treated as plain survey when the area under consideration is .....
Option A:	Less than 260 sq. km
Option B:	More than 260 sq. km
Option C:	Less than 300 sq. km
Option D:	More than 300 sq. km
2.	The Dip of the needle is ..... angle.
Option A:	Horizontal
Option B:	Vertical
Option C:	Neutral
Option D:	Azimuth
3.	The vertical distance between any two consecutive contours is called
Option A:	contour gradient
Option B:	contour interval
Option C:	inverted counter
Option D:	contour dimension
4.	If the coordinates of P are 200N and 100E and those of Q are 200S and 100E, then the length PQ is .....
Option A:	100m
Option B:	200m
Option C:	300m
Option D:	400m
5.	The principle of plane tabling is .....
Option A:	Triangulation
Option B:	Traversing
Option C:	Swinging
Option D:	Parallelism
6.	When the first reading taken on a staff on a BM of RL 103.45m, is 2.875m. The height of instrument is .....
Option A:	106.325 m.
Option B:	2.875 m.
Option C:	100.575 m.
Option D:	103.45 m.

7.	The chord of a curve less than peg interval, is known as
Option A:	Normal chord
Option B:	Sub chord
Option C:	Small chord
Option D:	Short chord
8.	The working principle of tacheometry is based on .....
Option A:	Right angle triangle
Option B:	Isosceles triangles
Option C:	Rectangle
Option D:	Square
9.	The Simpson's rule of computing area is applicable only when number of ordinates is .....
Option A:	EVEN
Option B:	ZERO
Option C:	INFINITE
Option D:	ODD
10.	For a horizontal line of sight, horizontal distance in tacheometry is given by
Option A:	$(f*s) + (f+d)$
Option B:	$(f/s)*i + (f-d)$
Option C:	$sf/fd$
Option D:	$(f/i)*s + (f+d)$

<b>Q2</b>	<b>Solve any Two Questions</b>	<b>10 marks each</b>															
A	Following Bearing were observed in the field where local attraction was suspected.																
	<table border="1"> <thead> <tr> <th>LINE</th> <th>FB</th> <th>BB</th> </tr> </thead> <tbody> <tr> <td>AB</td> <td>66°15'</td> <td>244°00'</td> </tr> <tr> <td>BC</td> <td>129°45'</td> <td>313°00'</td> </tr> <tr> <td>CD</td> <td>218°30'</td> <td>37°30'</td> </tr> <tr> <td>DA</td> <td>306°45'</td> <td>126°45'</td> </tr> </tbody> </table>		LINE	FB	BB	AB	66°15'	244°00'	BC	129°45'	313°00'	CD	218°30'	37°30'	DA	306°45'	126°45'
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Find the Correct Magnetic Bearings and True Bearings if Magnetic Declination is 1°40'E.																	
B	The following consecutive readings were taken at 30m interval on a continuously sloping ground with a level and 4m levelling staff.																
	0.680 (on A), 1.455, 1.855, 2.330, 2.885, 3.380, 1.055, 1.860, 2.265, 3.540, 0.835, 0.945, 1.530 and 2.250 (on B). The RL of the point A was 80.750m. Find the gradient of line AB.																
C	Explain in detail the road project executed in survey camp and state the utility of the same for a civil engineer.																

<b>Q3</b>	<b>Solve any Two Questions</b>	<b>10 marks each</b>																			
A	In a closed traverse PQRSTP, the following lengths and bearing of the sides were observed																				
	<table border="1"> <thead> <tr> <th>LINE</th> <th>Length (m)</th> <th>Bearing</th> </tr> </thead> <tbody> <tr> <td>PQ</td> <td>725</td> <td>120°15'</td> </tr> <tr> <td>QR</td> <td>?</td> <td>?</td> </tr> <tr> <td>RS</td> <td>1250</td> <td>322°24'</td> </tr> <tr> <td>ST</td> <td>945</td> <td>235°18'</td> </tr> <tr> <td>TP</td> <td>577.20</td> <td>182°40'</td> </tr> </tbody> </table>	LINE	Length (m)	Bearing	PQ	725	120°15'	QR	?	?	RS	1250	322°24'	ST	945	235°18'	TP	577.20	182°40'	Compute the length and bearing of side QR?	
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B	A fixed hair tacheometer fitted with an anallatic lens and having its constant 100, was set up at station C and the following observations were taken on vertically held staff:																				
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C	Write notes on i) Total Station ii) Radial Contouring																				

<b>Q4</b>	<b>Solve any Two Questions out of Three</b>	<b>10 marks each</b>																						
A	Compute the following area enclosed between the chain line, irregular boundary line and end offsets by i) Simpson's Rule ii) Trapezoidal Rule																							
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Offsets (m)	6.7	5.8	10.3	12.8	9.7	8.8	6.9	8.2	6.5	5.8														
B	Tabulate the necessary data to set out a right-handed simple circular curve of 600 m radius to connect two straights intersecting at a chainage of 3605 m by deflection angle method, the angle of intersection being 155° and peg interval 30 m.																							
C	Explain with suitable diagrams (Any Two) i) Characteristics of Contours ii) Methods of PTS iii) GPS iv) Reciprocal Ranging																							