University of Mumbai
Examination June 2021
Examinations Commencing from 1ˢᵗ June 2021.
Program: Civil Engineering
Curriculum Scheme: Rev2019
Examination: SE Semester IV
Course Code: CE-C403 and Course Name: Surveying

Time: 2-hour   Max. Marks: 80

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	A vertical curve can be set up by
Option A:	Rankine's method
Option B:	long chord method
Option C:	Tangent correction method
Option D:	offset from chord produced
2.	A tacheometer reads 2.385 and 2.780 m corresponding to the stadia hairs on a vertically held staff 50 m away. If the focal length of the object glass is 30 cm and the distance from the object glass to the trunnion axis of the tacheometer is 20 cm, the stadia interval is:
Option A:	3mm.
Option B:	0.333mm.
Option C:	3 cm
Option D:	10mm.
3.	In direct method of contouring, the process of locating or identifying points lying on a contour is called
Option A:	Ranging
Option B:	Offsetting
Option C:	Vertical Control
Option D:	Horizontal Equivalent
4.	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
5.	Contour interval is
Option A:	Inversely proportional to the scale of the map
Option B:	Directly proportional to the flatness of ground
Option C:	Larger if the time available is more
Option D:	Larger for accurate works
6.	The smallest two-dimensional non-divisible element of an image is called

Option A:	byte
Option B:	node
Option C:	pixel
Option D:	bit
7.	Which of the following will not affect the accuracy of the GPS positioning?
Option A:	Atomic clock
Option B:	Atmospheric conditions
Option C:	Tall buildings in close proximity
Option D:	Position of satellites
8.	Which of the following is an essential requirement for working with Total Station?
Option A:	Clear line of sight
Option B:	Internet connectivity
Option C:	Flat topography
Option D:	Daylight
9.	The degree of curve is generally given by the central angle subtended by an arc of length
Option A:	25 m.
Option B:	22.5 m
Option C:	1719.87 m.
Option D:	30 m.
10.	Over-turning of vehicles on a curve can be avoided by using
Option A:	Reverse Curve
Option B:	Transition Curve
Option C:	Compound Curve
Option D:	Vertical Curve
11.	For a horizontal line of sight, horizontal distance 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)
12.	In a compound curve, the point at which both the long curve and short curve will meet is called
Option A:	Point of diverging radius
Option B:	Point of deflection curve
Option C:	Point of compound curvature
Option D:	Point of curvature curve
13.	GPS stands for
Option A:	Geographical Positioning System
Option B:	Geographical Priority System
Option C:	Geological Positioning System
Option D:	Global Positioning System

14.	The formula for computing horizontal distance (in meters) using subtense bar, where s = the distance (in m.) between the targets of subtense bar in m., and α = apex angle (in seconds) subtended by targets at Centre of subtense bar is given by:
Option A:	265205 * α / s
Option B:	206265 * s / α
Option C:	800 * α / s
Option D:	800 * s / α
15.	Which of the following methods of contouring is most suitable for a flat plateau?
Option A:	Chord Gradient method
Option B:	Block Contouring method
Option C:	Tangent Correction method
Option D:	Radial Tacheometry method
16.	Which statement of the following is true?
Option A:	Spatial resolution gives the measure of the smallest linear separation between two objects that can be resolved by the sensor
Option B:	Active remote sensing uses natural source of energy
Option C:	Passive remote sensing uses artificially generated energy
Option D:	Remote Sensing is always done at nights
17.	GPS segments do no include
Option A:	Space segment
Option B:	Equinox segment
Option C:	User segment
Option D:	Control segment
18.	The computation of sight distance does not depend on which of the following?
Option A:	Gradient of the road
Option B:	Efficiency of brakes
Option C:	Speed of the vehicles
Option D:	Gender of the driver
19.	If the radius of the curve is given as 149.6m and the deflection angle is 32°30', what will be the length of the chord.
Option A:	63.76m.
Option B:	120.98m.
Option C:	83.72m.
Option D:	205.4m.
20.	The distance in EDM is measured by
Option A:	Refraction
Option B:	Phase difference
Option C:	Amplitude
Option D:	Absorption

Q 2	**Solve any Four out of Six** **5 marks each.**
A	List the accessories required for Plane Table Survey. Describe the different methods for orientation of the plane table.
B	Explain Measurement of horizontal angle by method of Repetition.
C	Explain indirect ranging
D	Write a note on different axes of a theodolite and their interrelationships for the instrument to be in perfect adjustment.
E	A 20 m chain was found to be 4 cm too long after chaining 1400 m. It was 8 cm too long at the end of day's work after chaining a total distance of 2420 m. If the chain was correct before commencement of the work, find the true distance.
F	Compare: Surveyors Compass and Prismatic Compass.

Q 3	**Solve any two out of three** **10 marks each.**
A	A road embankment 30 m wide at top with side slope of 2 to 1 have ground levels at 100 meters interval along line PQ as under: P(153.0),151.8,151.2,150.6,(149.2)Q. The formation level at P is 161.4 m with a uniformly falling gradient of 1 in 50 from P to Q. Find volume of earthwork by prismoidal formula. Assume the ground to be level in c/s .
B	Explain fly levelling with its procedure and purpose.
C	Write down the detailed format of Gale's traverse table.