

UkaTarsadia University	
Diploma Engineering MCQ Question bank	
Subject Code: 020030402	Date:
Subject Name: Advanced surveying	

Instructions:

1. Attempt all questions.
2. Make suitable assumption wherever necessary.
3. Each question is of 1 mark.
4. Use of SIMPLE CALCULATOR is permissible. (Scientific/Higher Version not allowed)
5. English version is authentic.

Unit 2- Trigonometric Levelling			
1	Which instrument is used for trigonometric levelling?		
	Theodolite		Prismatic compass
	Dumpy level		Chain
2	In trigonometric levelling which type of functions are used?		
	Calculus functions		Matrix
	Trigonometric functions		Algebra
3	If the distance between object and instrument is less, which parameter is not considered?		
	Distance on earth		Curvature of Earth
	Height of instrument		RL
4	In trigonometric levelling, if, vertical angle is positive then what is the correction for the angle?		
	Negative		Positive
	Zero		Positive and negative
5	What is the equation for correction of curvature of Earth?		
	$0.0040 D^2$		$0.225 D^2$
	$0.091 D^2$		$0.0673 D^2$
6	If an instrument cannot be set up on the place where RL needs to be found, then which method is used?		
	Reciprocal method		Direct method
	Both		None of above
7	Which method as trigonometric levelling is used when the difference of height needs to be found?		

		Direct method		Reciprocal method
		Both		None of the above
8	Which method of observation is used in trigonometric levelling, when we want to find the height of a tower from a distance?			
		Direct method		Reciprocal method
		Stadia method		None of the above
9	When the base of an object is accessible which case is considered in trigonometric levelling?			
		Case 1		Case 2
		Case 3		None of the above
10	What is the equation of height of the object in case one?			
		$h = D/2 \cdot \tan \alpha$		$h = D \cdot \cos \alpha$
		$h = D \cdot \sin \alpha$		$h = D \cdot \tan \alpha$
11	When the distance between object and instrument is not measurable, then this method can be used			
		Case 1		Case 2
		Both		None of the above
12	What is the equation of RL of top of the tower when base is not accessible			
		$R.L = RL \text{ of BM} + B_s + h$		$R.L = RL \text{ of BM} + B_s - h$
		$R.L = RL \text{ of BM} - B_s + h$		$R.L = RL \text{ of BM} - B_s - h$
13	What is the equation of distance if the base of the object is inaccessible and the instrument and object are in the same vertical plane?			
		$D = b \tan \alpha_1 / (\tan \alpha_1 - \tan \alpha_2)$		$D = b \tan \alpha_2 / (\tan \alpha_2 - \tan \alpha_1)$
		$D = b \tan \alpha_2 / (\tan \alpha_1 - \tan \alpha_2)$		$D = b \tan \alpha_1 / (\tan \alpha_2 - \tan \alpha_1)$
14	What is the equation of height of a tower if the base of the object is inaccessible and the instrument and object are in the same vertical plane?			
		$h = b \tan \alpha_2 \tan \alpha_1 / (\tan \alpha_1 + \tan \alpha_2)$		$h = b \tan \alpha_2 / (\tan \alpha_2 - \tan \alpha_1)$
		$h = b \tan \alpha_1 \tan \alpha_2 / (\tan \alpha_1 - \tan \alpha_2)$		$h = b / (\tan \alpha_2 - \tan \alpha_1)$
15	Trigonometric levelling is useful because it uses..			
		Linear equations		Algebra and its function
		Trigonometry and its functions		All of the above
16	Earth's curvature is considered when..			
		Distance between object and instrument is smaller		Distance between object and instrument is greater
		Height of object is smaller		Height of object is higher
17	What is the equation of distance if the base of the object is inaccessible and the instrument and object are in the same vertical plane with a nearer instrument is lower?			
		$D = (b + h_d \cot \alpha_2) \tan \alpha_1 / (\tan \alpha_2 - \tan \alpha_1)$		$D = (b + h_d \cot \alpha_2) \tan \alpha_2 / (\tan \alpha_1 - \tan \alpha_2)$

	α_1		α_2
	$D = (b + h_d \cot \alpha_1) \tan \alpha_1 / (\tan \alpha_1 + \tan \alpha_2)$		$D = (b + h_d \cot \alpha_2) \tan \alpha_2 / (\tan \alpha_1 + \tan \alpha_2)$
18	What is the equation of height if the base of the object is inaccessible and the instrument and object are in the same vertical plane with a nearer instrument is lower?		
	$D = (b - h_d \cot \alpha_2) \tan \alpha_1 \cdot \tan \alpha_2 / (\tan \alpha_2 - \tan \alpha_1)$		$D = (b + h_d \cot \alpha_2) \tan \alpha_1 \cdot \tan \alpha_2 / (\tan \alpha_1 + \tan \alpha_2)$
	$D = (b + h_d \cot \alpha_1) \tan \alpha_1 \cdot \tan \alpha_2 / (\tan \alpha_1 + \tan \alpha_2)$		$D = (b + h_d \cot \alpha_2) \tan \alpha_1 \cdot \tan \alpha_2 / (\tan \alpha_1 - \tan \alpha_2)$
19	Which of the following is not a case in trigonometric levelling		
	Base of object is accessible		Base of object is inaccessible
	Base of object is at accurate position		Base of object is inaccessible, station is not in vertical plane
20	Among the following which represents the method of Observation for trigonometric levelling?		
	Direct		Indirect
	Both a and b		None of the above
21	Which is the following correction applied when the points are having small distance between them?		
	correction for curvature		correction for refraction
	combined correction		none of the above
22	Which of the following indicates the value of D when base of object is accessible?		
	$D = h \cot \alpha$		$D = h / \tan \alpha$
	$D = \tan \alpha / h$		Both A and B
23	In which of the following cases two instrument stations are used?		
	base of the object is at infinity		base of the object is at accurate position
	base of the object is accessible		base of the object is inaccessible
24	When the base of the object is accessible, calculate The RL of B, if D = 24. 96 m, angle for line of sight is +4 degree 24 minutes, height of the axis will be 1.29 m and RL of A is 400m		
	403.21 m		430.21 m
	403.12		401.32 m
25	Distance between Tower to instrument is 100 m, angle of top of Tower is +5 degree and bottom of the tower is -4 degree so what is the height of Tower?		
	14.73 m		15.73 m
	16.73 m		15.70 m
26	while taking observations for the height and distance which method of surveying is used		
	Chain surveying		Compass surveying
	Plane surveying		Geodetic surveying

27	The correction for curvature and refraction is applied when the points are having small distance between them			
		True		False
		Irrelevant		None of the above
28	Which of the following indicates the value of B when the base of the object is accessible?			
		$D = s / \tan \alpha$		$D = \tan \alpha / s$
		$D = \tan \alpha / h$		$D = h / \tan \alpha$
29	Among the following which represents the method of observation?			
		Indirect method		Reciprocal method
		Recruiting method		Transit method
30	In which of the following cases to instruments stations are used			
		Base of the object is it in feet		Base of the object is at
		Base of the object is accessible		Base of the object is inaccessible
31	Engineering surveying curvature and refraction are neglected			
		False		true
		Irrelevant		none of the above
32	Calculate the R.L of B, if D = 24.96 m, angle for line of sight is +4024', height of the axis will be 1.29 m and the R.L of A is 400 m.			
		403.21 m		430.21 m
		403.12 m		401.32 m
33	For the case when two instruments are on the same level, find the horizontal distance between the station and staff and consider the distance between stations will be 2 m.			
		1.6 m		1.4 m
		1.2 m		1.8 m
34	If the value of D= 2000 m, what would be correction for curvature?			
		0.629 Sq.m		0.269 Sq.m
		0.962 Sq.m		0.692 Sq.m
35	Which is the best instrument used for trigonometric levelling			
		Dumpy level		Chain
		Theodolite		Prismatic compass
36	In trigonometric levelling, if, vertical angle is Negative then what is the correction for the angle?			
		Negative		Positive
		Zero		Positive and negative
37	In case 1 base of an object is accessible			
		True		False
38	Which of the following method is used when RL needs to be found and instrument cannot			

	be set up on the place?		
	Direct method		Reciprocal method
	Both		None of the above
39	In case 2, the distance between object and instrument is not measurable but both instrument and object are in different plane		
	True		False
40	While taking observations for the height and distance geodetic surveying is used		
	True		False
41	In case 3, the distance between object and instrument is not measurable but both instrument and object are in different plane		
	True		False
42	If the value of $D = 4000$ m, what would be correction for curvature?		
	1.07 Sqmt		107.0Sqmt
	10.7 Sqmt		None of the above
43	Two instrument stations are used when base of the object is inaccessible.		
	True		False
44	Which of the following is a case in trigonometric levelling		
	Base of object is at accurate position		Base of object is inaccessible, station is not in vertical plane
	Base of object is always below object level		None of the above
45	Among the following which represents the method of Observation for trigonometric levelling?		
	Indirect method		Reverse method
	Base method		None of the above
46	Which of the following instrument is not used in Trigonometric levelling?		
	Theodolite		Levelling staff
	Metric chain		Ranging rod
47	What is the maximum size of levelling staff used for trigonometric levelling?		
	3 m		4 m
	2 m		All of the above
48	If two instruments are used in trigonometric levelling, then they are always in same vertical plane.		
			False

49	Like stadia method, in trigonometric levelling three readings are taken on every staff reading			
				False
50	It is possible to find level of multiple points (More than 2) in a single attempt of instrument set up.			
				False
Unit 4- Curves				
1	The line connecting two curves is always..			
		Linear		Tangential
		Transitional		Perpendicular
2	Simple curve and compound curve are			
		Circular curves		Vertical curves
		Transitional curves		None of the above
3	Cubic parabola and spiral curves are			
		Circular curves		Transitional curves
		Vertical curves		None of the above
4	Which of the following is not application of curve?			
		Roads		Railways
		Canals		Seaways
5	Simple curve is made of			
		A single arc		Double arc
		Mixture of two arcs		None of the above
6	Lemniscate is a curve categorised in ..			
		Vertical curves		Circular curves
		Transitional curves		All of the above
7	Reverse curve is categorised in			
		Vertical curves		Circular curves
		Transitional curves		All of the above
8	Which of the following is a vertical curve			
		Compound curve		Cubic curve
		Reverse curve		Summit Curve
9	The curve which is made by two or more simple arcs in one direction is called			
		Simple curve		Vertical curve
		Compound curve		Transitional curve

10	The curve which is made by two opposite arcs in opposite direction is called		
	Simple curve		Vertical curve
	Compound curve		Reverse curve
11	The tangent before the curve starts is called		
	Back tangent		Forward tangent
	Point of intersection		None of above
12	The tangent after the curve ends is called		
	Back tangent		Forward tangent
	Point of intersection		None of above
13	The point at which the back tangent and the forward tangent intersects is called		
	Back tangent		Forward tangent
	Point of intersection		None of above
14	the starting point of the curve T1 is called		
	Point of curve		Point of tangency
	Intersection angle		Deflection angle
15	The ending point of curve T2 is called		
	Deflection angle		Intersection angle
	Point of curve		Point of tangency
16	The angle made by intersection of tangent AV and tangent VB is called		
	Point of tangency		Point of curve
	Intersection angle		Deflection angle
17	the angle which is created the deflection of the tangent VB in proportion to tangent AV is called		
	Deflection angle		Point of tangency
	Point of curve		Intersection angle
18	The distance between point of intersection to point of curve is called		
	External distance		Tangent distance
	Length of curve		Chord length
19	The distance from point of intersection to peak point of the curve is called		
	External distance		Tangent distance
	Length of curve		Forward tangent
20	The distance between point of intersection to point of tangency is called		
	External distance		Point of intersection
	Length of curve		Tangent distance
21	The total length from point of curve to point of tangency is called		
	External distance		Point of tangency

		Length of curve		Tangent distance
22	The line joining tangent point T1 and tangent point T2 is called			
		Tangent distance		Long chord
		Length of curve		External distance
23	Usually the length of normal chord is not more than			
		20 m		30 m
		50 m		100 m
24	The distance between centre point of long chord and peak point of curve is called			
		Apex distance		Long chord
		Mid ordinate		Sub ordinate
25	Designation of curve by radius is identify by its			
		Diameter		Radius
		Length		None of the above
26	By chord definition the relation between radius and degree of curvature is			
		$R = 1100 / D$		$R = D / 1146$
		$R = 1146 / D$		$R = D / 1100$
27	the first step of setting out a simple circular curve is			
		Recognising tangent points		Identifying radius of curve
		Locate mid ordinate		Calculate number of chords
28	The relation between intersection angle and deflection angle is			
		$\Delta = 360 - \phi$		$\Delta = 360 + \phi$
		$\Delta = 180 + \phi$		$\Delta = 180 - \phi$
29	The equation of length of curve is			
		$l = R \cdot \Delta \cdot \pi / 180$		$l = D \cdot \Delta \cdot \pi / 180$
		$l = R \cdot \Delta \cdot \pi / 180$		$l = \Delta \cdot \pi / 360$
30	Equation for tangent length is			
		$T = R \cdot \pi \cdot \tan (\Delta)$		$T = R \cdot \tan (\Delta/2)$
		$T = R \cdot \tan (\Delta/2)$		$T = R \cdot \tan (\Delta/2)$
31	The equation for length of long cord is			
		$L = 2R \cdot \sin (\Delta/2)$		$L = R \cdot \sin (\Delta/2)$
		$L = 2R \cdot \tan (\Delta/2)$		$L = 2R \cdot \tan (\Delta)$
32	The equation for the external distance is			
		$E = R (\sec \Delta - 1)$		$E = R (\sec (\Delta/2) - 1)$
		$E = R (\tan (\Delta/2) - 1)$		$E = R (\cos (\Delta/2) - 1)$
33	the equation for length of mid ordinate is			
		$M = R (1 - \tan (\Delta/2))$		$M = R (\cos (\Delta/2) - 1)$

		$M = R (\tan (\Delta/2) - 1)$		$M = R (1 - \cos (\Delta/2))$
34	The distance on long chord to any offset point is called			
		Offset distance		Tangent length
		Chainage		Chord length
35	Rankine's method is which method of setting out of a curve?			
		Offset method		Radial method
		Tangent method		Angular method
36	The centrifugal force is acting in which type of curve?			
		Simple circular curve		Transition curves
		Vertical curves		None of the above
37	The equation of centrifugal force P is			
		$P = \frac{WV^2}{gR}$		$P = \frac{RV^2}{g}$
		$P = \frac{V^2}{R^2} gW$		$P = \frac{W^2V}{gR}$
38	Which of the following is not transition curve			
		Cubic parabola		Summit curve
		Spiral		Lemniscate
39	Concave curve and convex curve are types of which curve?			
		Cubic parabola		Spiral
		Vertical curves		Lemniscate
40	Calculate mid ordinate for deflection angle 40 degree and 200 m radius of a curve			
		12 m		15 m
		10 m		8 m
41	Calculate length of curve for radius 150 m and intersection angle 72 degrees			
		128.75		242.69
		212.25		282.74 m
42	Calculate length of chord if deflection angle is 40 degree and 180 m radius of curve			
		114.15		122.80
		123.12		128.60
43	Find external distance for radius 150 m and intersection angle 72 degrees.			
		162.36		200
		105.10		129.36
44	Calculate tangent length for deflection angle 40 degree and 200 m radius of curve			
		60.23		72.80
		45.22		80.12
45	Calculate mid ordinate for radius 191 m and deflection angle 45 degree			
		14.51		21.56

	26.35		None of above
46	Which of the following is not an angular method to form a curve?		
	Tacheometric method		One theodolite method
	2 Theodolite method		Offset chord method
47	Which of the following is vertical curve		
	Summit curve		Valley curve
	Both		None of the above
48	Find tangent distance if radius is 200 m and intersection angle is 120 degree		
	110.22		115.47
	123.2		119.35
49	Which method of curve is used for larger radius in important projects?		
	Tacheometric method		One theodolite method
	2 Theodolite method		Offset chord method
50	In which method of setting out of the curve no complex instruments are required?		
	Linear methods		Methods by offset from codes
	Method by offset from tangents		Angular methods
Unit 6- Software Application			
1	In total station data is stored in		
	Pen drive		Data card
	Microprocessor		External hardware
2	Compensator can make complete adjustments in Total Station		
	True		False
	None of the above		Irrelevant
3	Vertical angle is measured in the total station as		
	Zenith angle		Nadir angle
	Latitude		Longitude
4	Which of the following indicates the formula for converting slope distance to horizontal distance		
	$S = H (\sin z)$		$H = S \sin z$
	$H \cos z = S (\sin z)$		$H = S (\sin z)$
5	When the total station is sighted to the target, which of the operations acts first?		
	Rotation of optical axis		Rotation of vertical axis
	Rotation of horizontal axis		Rotation of line of collimation
6	Which of the following indicates the correct set of the combination of Total Station?		
	Theodolite compass		Theodolite EDM
	Electronic theodolite EDM		EDM GPS

7	Which among the following doesn't indicate the basic calculation of Total Station?		
	Horizontal distance		Slope distance
	Vertical distance		Co-ordinate calculations
8	the formula for difference in elevation can be given as		
	$D = V + (I-R)$		$D = V + (I+R)$
	$D = V - (I-R)$		$D = V * (I-R)$
9	In which direction is it best to place the total station for obtaining the best output?		
	East		West
	North		South
10	The data obtained from the total station can be used in which among the following software directly?		
	Primavera		STAAD PRO
	Autodesk Revit		Surfer
11	Calculating the elevation difference if the vertical distance is 14.89m, instrument height is 9.2m, ground is at 2.8m.		
	21.29 m		12.29 m
	21.92 m		41.29 m
12	Find the vertical distance if the value of slope distance can be given as 12.98 and the angle is $1^{\circ}23'$.		
	21.97m		12.97m
	12.79m		21.79m
13	Find the elevation of ground beneath the reflector, if the known elevation of instrument is 12.76m, slope distance = 3.76m, angle is about $3^{\circ}43'$, instrument height = 2.93m, ground is at 0.987 m.		
	18.54m		81.54m
	18.45m		18.97m
14	Modern EDM uses which among the following waves?		
	Visible rays		Thermal infra-red
	Modulated infra-red		Radio waves
15	Which property of an electromagnetic wave, depends on the medium in which it is travelling?		
	Velocity		Frequency
	Time period		Wave length
16	The distance in EDM is measured by		
	Frequency of the wave		Wave length
	Phase difference		Amplitude
17	Tellurometer, a type of EDM uses which of the following waves?		
	Visible rays		Infra-red waves

		Microwaves		Radio waves
18	Find the value of D if the wavelength of the wave is 40m, $n=2$ m and the angles are given as $\theta_1 = 0^\circ$, $\theta_2 = 180^\circ$.			
		50 m		40 m
		20 m		10 m
19	Electromagnetic waves are represented in which of the following formats?			
		Longitudinal waves		Transverse waves
		Sinusoidal waves		Surface waves
20	For increasing accuracy, high frequency of propagation is used.			
		True		False
		Not Given		Irrelevant
21	What would be the value of length if the distance is given as 30m, $m=3$ and the change in length is 8m.			
		7.43 m		7.34 m
		6.34 m		5.43 m
22	Phase difference can be expressed in which of the following format?			
		Meters per second		Meters
		Cycles		Seconds
23	Which of the following represents the correct sequence for the basis of EDM propagation?			
		Propagation, generation, reflection and reception		Generation, reception, reflection and propagation
		Generation, propagation, reception and reflection		Generation, propagation, reflection and reception
24	Different types of EDM's are obtained on the basis of _____			
		Wave length		Carrier wave
		Frequency		Time period
25	Which among the following EDM instruments is having more range?			
		Infra-red instruments		Visible light instruments
		Microwave instruments		Gamma ray instruments
26	Which type of modulation is used in the case of microwave instrument?			
		Frequency modulation		Amplitude modulation
		Carrier wave modulation		Time period modulation
27	The frequency range used in visible light instruments is _____			
		5×10^{11} Hz		5×10^8 Hz
		5×10^{10} Hz		5×10^{14} Hz
28	Geodimeter uses which of the following waves as a carrier wave?			
		Microwaves		Visible light

	Infra-red		Cosmic rays
29	Microwave EDM instrument requires two instrument stations.		
	True		False
	Not Given		Irrelevant
30	What among the following indicates the range of Geodimeter?		
	20 Km		30 Km
	25 Km		35 Km
31	The wavelength of I.R in infra-red instruments is about _____		
	$0.6 \times 10^{-6} \text{ m}$		$1.0 \times 10^{-6} \text{ m}$
	$0.7 \times 10^{-6} \text{ m}$		$0.9 \times 10^{-6} \text{ m}$
32	Frequency modulation is used in the case of visible light EDM.		
	True		False
	Not given		Irrelevant
33	Which among the following EDM instruments are capable of producing output with less expenditure?		
	Microwave instruments		Cosmic ray instruments
	Visible light instruments		Infra-red instruments
34	How to remove circle eccentricity in electronic theodolite?		
	By taking both face reading		By proper levelling
	By proper centring		None of the above
35	How to remove pointing errors in total survey system?		
	By taking both face reading		By proper levelling
	By proper centring		By repeating observations
36	how to reduce error in the total station if EDM is modular?		
	By centring and levelling		By putting on instrument
	By repeating readings		None of the above
37	What is the maximum charging time of the battery of total station?		
	5 to 6 hours		8 to 10 hours
	12 to 14 hours		More than 24 hours
38	Which computer program is used to retrieve data in total station?		
	MS word		MS Excel
	MS PowerPoint		AutoCAD
39	Which of the following is radial shooting?		
	Maximum reading taken from one point		Maximum objects bisected
	Shooting from video Camera		Radio communication
40	Descriptive and graphical data are stored in _____		

		Graphic book		Record Book
		Field book		Journals
41	Which of the following is not an EDM setting?			
		Select IR laser		Fine measuring mode
		Temperature measurement		Pressure in hPa
42	which of the following is called backsight without prism?			
		Longitude		Azimuth
		Benchmark		None of the above
43	Which of the following is used for centring in total station?			
		Plumb Bob		Fixing screw
		Optical plummet		None of the above
44	Which instrument is used to level electronic total station?			
		Tribrach		Foot screw
		Tripod stand		All of them
45	What does include in prism set for total station?			
		Prism		Centring rod
		Prism holder		All of above
46	What is the average value of prism constant?			
		0 to 10 mm		0 to 50 mm
		10 to 20 mm		0 to 100 mm
47	What is the full form of RPU?			
		Radial proportion unit		Remote partial unit
		Remote positioning unit		None of the above
48	What is the range of ATR??			
		1000 m		2000 m
		500 m		5000 m
49	What is the range of a single prism reflector?			
		2 kilometres		1 kilometre
		5 kilometres		10 kilometre
50	Which of the following is a type of total station?			
		Manual total station		Automatic total station
		Semi-automatic total station		All of the above

****Best of Luck****