| Name: | UPES |
| Enrolment No: | UNIVERSITY WITH A PURPOSE |

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2021

Course: Surveying and Geomatics   Semester: IV
Program: B Tech Civil Engineering   Time 03 hrs.
Course Code: CIVL 2018   Max. Marks: 100
Instructions:

SECTION A

S. No.		Marks	CO
Q 1	Find the height of the instrument of set up of whose RL is 104.65 mt and a fore sight reading of 0.765.	5	CO1
Q 2	Name five methods of computation of areas of plane figures.	5	CO2
Q 3	Name the temporary adjustments of a theodolite.	5	CO3
Q 4	Find the length of the tangent for a curve of radius 15 mt and a deflection angle of 30°.	5	CO4
Q 5	Find the scale of vertical photograph if the focal length is 6″ and the height of plane above ground is 15,000 ft.	5	CO1
Q 6	Find the area of an uneven boundary with mid ordinates of 0.9, 1.5, 2.4 mt, at an interval of 5 mt.	5	CO2

SECTION B

Q 7	Find the X values in the following table of leveling operation readings, fill the remarks column also.	10	CO1

Station	BS	IS	FS	Rise	Fall	RL	Remarks
1	2.15					100.00	
2	1.645		X	0.5		X	
3		2.345			X	X	
4	X		1.965	X		X	
5			1.925		0.5	X	

Q 8	The following perpendicular offsets were taken from a chain line to a barbed wire fence, calculate the area between the chain line, the barbed fence and the end offsets.	10	CO2

Chainage (m)	0	20	40	60	80	100	120	140
Offsets (m)	6.7	5.5	10.5	11.7	10	9	7	8.6

Q 9	Describe the procedure of measuring Horizontal angle with the help of a theodolite	10	CO3
Q10	Derive three elements of simple circular curve of radius R and deflection angle α.	10	CO4
Q 11	Find the tachometric constants for the following readings	10	CO3

Instrument station	Staff held at	Stadia readings	Distance
P	A	0.675, 0.685, 0.695	PA = 2.3 mt
P	B	1.235, 1.255, 1.275	PB = 4.4 mt

SECTION C

| Q 12 | A Highway curve of 40 m radius connects two straights making a deflection angle of 60° the Chainage of the intersection point is 734 m. make out necessary calculations for setting out the curve. The unit chord is 2 m. Draw the curve to scale. | **20** | **CO4** |