R/U/A LEVEL BASED SAMPLE QUESTIONS

Subject: 2110004 - Elements of Civil Engineering **Time:** 150 Minutes

Remembrance based sample questions	
Question No	*Question Description*
A1	Recall the following technical terms. (i) Circulation (ii) Declination (iii) Height of Instrument
A2	Enlist various instruments used in chaining and describe any one of them with sketch.
A3	Draw the sectional elevation of a prismatic compass and label the parts of the instrument.
A4	Enlist any three kinds of cements and mention their specific application.
A5	Enumerate various principles of planning.
A6	List the properties of stone used to construct building.
A7	Draw six signatures of traffic signs (symbols).

A8	Recall the term DzWatersheddz , citing an example.

Understanding based sample questions	
Question No	*Question Description*
B1	Consolidate your views in the context of Indian economy on the affect of the Dz)mpact of infrastructural developmentdz.
B2	State and justify the fundamental principles of surveying with appropriate examples.
B3	a) Detail the process steps to convert *Whole Circle Bearing* (WCB) to *Reduced Bearing* (RB) and vice-versa with sketch. b) Convert WCB to RB: îiÕ ⍰9⍰^{0} îiiÕ 3⍰5^0
B4	Recall contour and mention the three uses of contour plan with suitable example.
B5	Conceptualize watershed development, draw appropriate diagram and support with real world examples/practice.
B6	Apply various aids and devices used to control, regulate and guide traffic citing appropriate examples.
B7	What do you understand by load bearing and a framed structure? Clearly spot the advantages with respect to each other and citing due examples.

Application and analysis based sample questions	
Question No	*Question Description*
C1	Scenario: In a two road junction crossing, heavy traffic congestion is a constant phenomenon. Give your suggestions to regulate and minimize the traffic congestion.
C2	Conceptualize a structure for a hilly and earthquake prone zone. Suggest suitable materials to be used to realize/erect such structures and discuss the limitations of the said structures.
C3	Conceptualize the design of a Check Dam with minimal construction for a village with population less than 7000. Detail critical design parameters specific to selection of Dam location and population.
C4	It is proposed to record the readings for the purpose of carrying out a boundary survey. The reading recorded by the device is tabled in matrix given below.

Line	Fore Bearing (FB)	Back Bearing (BB)
AB	20°3⍰ ’	200° ⍰ ⍰
BC	110° ⍰ ⍰	290° 3⍰ ’

	CD	195° [illegible]	15° [illegible]	
	DE	286° 3[illegible] ’	106° [illegible]	

Calculate the following:

1. Included angles.
2. True angles.
3. True bearings

C5

Data extracted from the level book of a survey department is tabled below:

Sr. No.	BS	IS	FS	Rise	Fall	RL	Remarks
1	2.665	--	--			240.000	BM
2	--	3.225	--		_____	_____	
3	_____	--	2.905	0.320		_____	CP I
4	--	_____	--	0.870		_____	
5	_____	--	2.620		1.640	238.990	CP II
6	--	0.960	--	_____		239.615	
7	--	--	_____	0.535		_____	

Specific condition under which the surveyed reading were recorded:

a. Instrument: Dumpy level - with four meter levelling staff
b. Method: Rise and fall

Based on the data of the level book fill in the missing values against each of the columns.

Note: apply standard checks and condition

C6

Readings received during dumpy level and four meter levelling staff from a continues sloping ground at 30 m interval is given below:

0.680, 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.

Further, the starting point Reduced Level was 80.750 m.

Do the following:

1. Prepare the Rule out page of a level book and enters the above readings.
2. Find R.L. of other points by Rise and Fall method
3. Apply necessary checks.
4. Determine gradient of a line joining first and last point.

C7

In a plot spanning 20 acres, there exist 6 buildings at different location. As an engineer you are required to prepare a foot print of the campus in a drawing using traverse method with necessary check-line and tie-line.