BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: B.TECH **SEMESTER : VII**
BRANCH: CIVIL **SESSION : MO/2022**

SUBJECT: CE426 APPLICATION OF CE TO MINING

TIME: 3:00 Hours **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1	Find the disturbing force of an external dump of a lignite mine with following details:-	[10]	CO	BL
	i. Weight of slice 1(W) = 110 kN			
	ii. Weight of slice 2,3,4,5,6,9 (W) = 130 kN each.			
	iii. Weight of slice 7,8 (W) = 35 kN			
	iv. Weight of slice 10,11 (W) = 40kN			
	v. Base angle (X) under slice 1,2,3,4,5,6,7,8,9, 10,11 = 30^0 , 32^0 , 34^0, 35^0, 36^0 , 30^0, 37^0, 37^0, 38^0, 39^0, 40^0, 26^0, 28^0 respectively.		3	3
	vi. Cohesion and angle of internal friction of dump material = 30kN/m^2 and 30^0 respectively.			
	vii. Cohesion and angle of internal friction of foundation material = 23kN/m^2 and 23^0 respectively.			
	viii. Area of surface of AB and BC = 140 m^2 and 190 m^2			

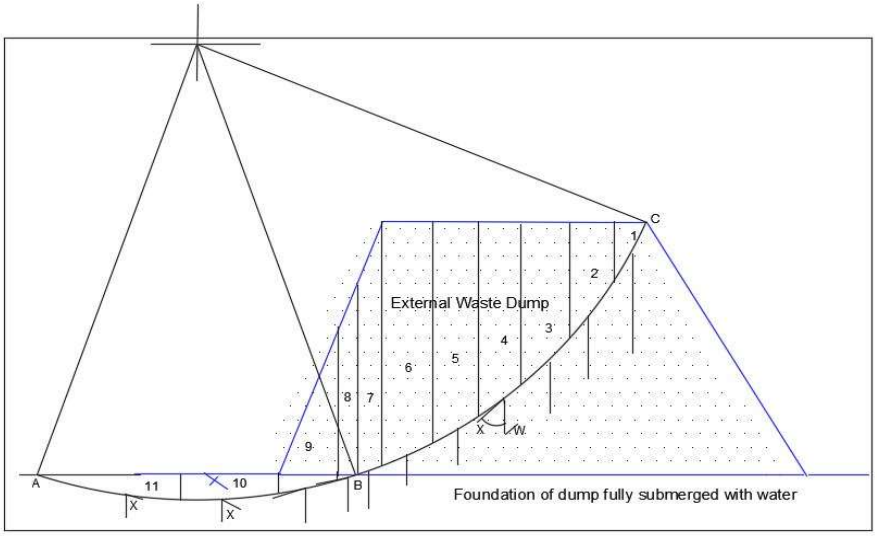

Fig 1 External Waste Dump

Q.2	Find the Frictional force of this external dump of a lignite mine with above details	[10]	3	3
Q.3(a)	Find the Cohesive force on the failure surface of this external dump	[3]	3	3
Q3(b)	Determine Factor of Safety of above external dump	[2]	3	3
Q.3(c)	Discuss Corporate Social responsibility in Engineering sector	[5]	4	4
Q.4(a)	Discuss Land Management in mining sector	[3]	5	5
Q4(b)	Define Rock Mechanics	[2]	1	1
Q (c)	Discuss in brief three failure modes in rock strata	[5]	1	1
Q (a)	Discuss impact on environment during mine development stage	[2]	5	5
5(b)	Discuss impact on environment during mine exploitation stage	[5]	5	5
Q5(c)	Discuss impact on environment during mine closure stage	[3]	5	5

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