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Internal Assessment Test 1 – Apr. 2018

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Sub:	APPLIED HYDRAULICS				Sub Code:	15CV43	Branch:	CIV	IL		
Date:	17-04-18	Duration:	90 min's	Max Marks:	50	Sem/Sec:	IV/	IV/A&B			BE
Answer any TWO from Part A and ALL from Part B Part A							MA	ARKS	СО	RBT	
1 (a)	Derive an ex	pression for	r force exer	ted by a jet on	a mo	oving inclin	ed plate.		[05]	CO4	L2
(b)	velocity of 1 when entering	0m/s. The j	et makes a es at an ar	oinges on a ser n angle 25 ⁰ to agle 120 ⁰ to the ad outlet ii) W	the dine di	direction of rection of r	motion of va- notion of va	ines	[10]	CO4	L3
2 (a)	What is meant by an afflux? Derive an expression for backwater curve.							I	[07]	CO3	L2
(b)	•								[08]	CO3	L3
3 (a)	A jet of water moving at 20m/s impinges on a symmetrical curved vane tangentially to deflect the jet through 140°. The vane is moving horizontally with a velocity 5m/s. Find the angle of jet so that there is no shock. Determine the work done per unit weight of water striking per second.								[08]	CO4	L3
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Date:	17-04-18	Duration:	90 min's	Max Marks:	50	Sem/Sec:	IV/A&B			OB	BE		
Answer any TWO from Part A and ALL from Part B							1	MARKS	СО	RBT			
Part A 1 (a) Derive an expression for force exerted by a jet on a moving inclined plate.									[05]	CO4	L2		
(b)	(b) A jet of water moving at 40m/s impinges on a series of curved vanes moving with velocity of 10m/s. The jet makes an angle 25 ⁰ to the direction of motion of vanes when entering and leaves at an angle 120 ⁰ to the direction of motion of vanes. Determine i) Vane angles at inlet and outlet ii) Work done iii) Efficiency						nes	[10]	CO4	L3			
2 (a)	2 (a) What is meant by an afflux? Derive an expression for backwater curve.								[07]	CO3	L2		
(b)	· · · · · · · · · · · · · · · · · · ·								[08]	CO3	L3		
3 (a)	tangentially tange	to deflect the m/s. Find the	ne jet throughe angle of	s impinges of the state of the state of the state of the state of the striking per second of the striking per second of the state of th	vane nere	is moving l is no shock	norizontally v	vith	[08]	CO4	L3		

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3 (b)	Determine the length of back water curve caused by an afflux of 1m in a rectangular channel of width 30m and depth 2m. The slope of bed is 1 in 10000 and N is 0.03.	[07]	CO3	L3
	Part B			
4 (a)	A jet of water strikes an unsymmetrical moving curved vane tangential at one of the tips. Derive an expression for force exerted by jet in horizontal direction of motion of vane. Describe the velocity triangles and obtain a relation for work done and efficiency.	[10]	CO4	L2
5 (a)	Explain the classification of surface profiles in an open channel with neat sketches.	[10]	CO3	L2
CI	CCI HOD			
3 (b)	Determine the length of back water curve caused by an afflux of 1m in a rectangular channel of width 30m and depth 2m. The slope of bed is 1 in 10000 and N is 0.03.	[07]	CO3	L3
	Part B			
4 (a)	A jet of water strikes an unsymmetrical moving curved vane tangential at one of the tips. Derive an expression for force exerted by jet in horizontal direction of motion of vane. Describe the velocity triangles and obtain a relation for work done and efficiency.	[10]	CO4	L2
5 (a)	Explain the classification of surface profiles in an open channel with neat sketches.	[10]	CO3	L2
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