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Internal Assessment Test 1 – Apr. 2018

Sub:	APPLIED HYDRAULICS	Sub Code:	15CV43	Branch:	CIVIL		
Date:	17-04-18	Duration:	90 min's	Max Marks:	50		
		Sem/Sec:	IV/A&B		OBE		
<b>Answer any TWO from Part A and ALL from Part B</b>							
					MARKS		
					CO	RBT	
<b>Part A</b>							
1 (a)	Derive an expression for force exerted by a jet on a moving inclined plate.				[05]	CO4	L2
1 (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 <sup>0</sup> to the direction of motion of vanes when entering and leaves at an angle 120 <sup>0</sup> to the direction of motion of vanes. Determine i) Vane angles at inlet and outlet ii) Work done iii) Efficiency				[10]	CO4	L3
2 (a)	What is meant by an afflux? Derive an expression for backwater curve.				[07]	CO3	L2
2 (b)	In a rectangular channel with bottom width 3m and bed slope 0.0001 has a discharge of 3m <sup>3</sup> /s. In a GVF in this channel the depth at a certain section is 0.5m. If N=0.016, determine the type of profile.				[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 <sup>0</sup> . 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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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

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CO4	L2

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