

CRM08

Rev 1.10

<CV>

<11/3/2022 >

CONTINUOUS INTERNAL EVALUATION - 2

Dept:CV	Sem / Div: 3	Sub:Fluid Mechanics	S Code: 18CV33
Date: 17/3/22	Time:9.30-11pm	Max Marks: 50	Elective: N

Note: Answer any 2 full questions, choosing one full question from each part.

QN	Questions	Ma rks	RBT	CO's
PART A				
1 a	Derive Darcy's equation for head loss through a pipe.	10	L2	CO5
b	Water flowing through a rigid pipe of diameter 500mm with 1.5m/s is suddenly brought to rest. Find the instantaneous pressure rise if $K : 2\text{GPa}$.	5	L3	CO5
c	A compound pipe system consists of 1800m of 0.5m diameter, 1200m of 0.4m diameter and 600m of 0.3m diameter connected in series. Convert the system to, i) An equivalent length of 0.4m diameter. ii) An equivalent pipe of 3600m length	10	L3	CO5
OR				
2 a	Explain the terms:i) Hydraulic gradient and ii) Total energy line.iii).Pipes in parallel ii) Pipes in series	8	L2	CO5
b	Find the diameter of the pipe of length 2500m when the rate of flow of water through the pipe is $0.25\text{m}^3/\text{sec}$ and head loss due to friction is 5m. Take $C = 50$ in Chezy's formula.	7	L3	CO5
c	The rate of water flow.of water through a horizontal pipe is $0.025 \text{ m}^3/\text{s}$. The diameter of the pipe which is 200mm is suddenly enlarged to 400mm. The pressure intensity in the smaller pipe is $11.772\text{N}/\text{cm}^2$. Compute: ; i)- Loss of head	10	L3	CO5

head due to sudden enlargement ii).pressure intensity in the large pipe.

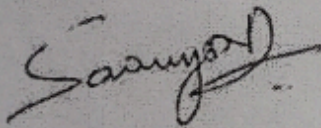
PART B

3	a	Water flows over a rectangular weir in 1m wide at a depth of 15 cm and afterwards passes through a triangular right angled weir. Taking C_d for rectangular weir 0.62 and for triangular =0.59, Find the depth over the triangular weir.	7	L3	CO4
	b	Explain cipolletti notch. What is the advantage of cipolletti notch over trapezoidal notch? Give the equation of discharge over a cipolletti notch	10	L2	CO4
	c	Explain types of nappe and ventilation of weir	8	L2	CO4

OR

4	a	Distinguish between i)notch and Weir ,ii)orifice and mouthpiece	5	L2	CO4
	b	Water is flowing in a rectangular channel 1 m wide and 0.75m deep. Find the discharge over a rectangular weir of 0.6m crest length. The head over the crest is 200mm, C_a :0.62. Take velocity of approach into consideration and neglect end contraction	10	L3	CO4
	c	Determine the equation for discharge of triangular notch	10	L3	CO4

Prepared by:



Dr.Sowmya N J

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