S4 Civil

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE
Mid Semester Examination – March 2019

Course: B. Tech in Civil Engineering **Sem: IV**
Subject Name: Hydraulics II **Subject Code: CV 401**
Max Marks:20 **Date:-11/03/2019** **Duration:- 1 Hr.**

Instructions to the Students:
1. All questions are compulsory.
2. Assume suitable data if necessary.

		(Level/ CO)	Marks
Q. 1	**Attempt following Questions**		**6**
a	Flo in the open channel may be classified as 'Laminar' flow if ;…… (a) Re < 500 (b) Re >2000 (c) 500 < Re < 2000 (d) none of the above	CO 1/ C-1	
b	The phenomenon occurring in an open channel when a rapidly flowing stream abruptly Changes to slowly flowing stream causing a distinct rise of liquid surface, is (A) Water hammer (B). Hydraulic jump (C). Critical discharge (D). None of the above	CO 2/ C-1	
c	The channel whose boundary is not deformable is known as (A). Rigid channel (B). Prismatic channel (C). Mobile channel (D). Boundary channel	CO 1/ C-1	
d	For a given discharge in a channel at critical depth (A). The total energy is minimum (B). The total energy is maximum (C). The specific energy is minimum (D). The specific energy is minimum	CO 2/ C-2	
e	The most economical section of a trapezoidal channel is one which has hydraulic mean depth equal to; (A). 0.5[depth] (B). 0.5 [sloping side] (C). 0.5[width] (D). 0.5[width + depth]	CO 1/ C-2	
f	The Maximum velocity in open channel occurs at; (A) Near the channel bed (B) a little below channel free surface (C) at the free surface (D) at the centre of flow	CO 1/ C-1	
Q.2	**Solve Any Two of the following.**		**3 X 2**
(A)	A 3 m wide rectangular channel conveys 12 m^3/s of water at a depth of 2m. Calculate; i) Specific energy, critical depth, minimal specific energy, critical velocity ii) Froude number and whether floe is subcritical or supercritical.	CO 2/ C-3	
(B)	What are the different types of channels? Give example in each case.	CO 1/ C-2	
(C)	A triangular gutter whose side includes angle of 60° conveys water at a uniform depth 4m. If the slope of the bed is 1 in 1000 find the rate of flow of water. Take Chezy's constant C =55.	CO 1/ C-3	
Q. 3	**Solve Any One of the following.**		**8**
(A)	Derive expression for the most economical trapezoidal channel section.	CO 1/ C-3	
(B)	Derive an expression for sequent depths is hydraulic jump. If sequent depths in a rectangular channel before and after hydraulic jump are 0.5m and 2 m respectively, calculate critical depth and discharge per unit width of channel.	CO 3/ C-3	

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