

Program: BE Civil Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester VI

Course Code: CEC603 and Course Name: Applied Hydraulics II

Time: 1 hour

Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	The displacement thickness for velocity distribution in a boundary layer expressed by $u/U=2y/\delta$ is:
Option A:	$-1/3 \delta$
Option B:	$-1/2 \delta$
Option C:	$1/3 \delta$
Option D:	$1/2 \delta$
Q2.	Which of the following formulas has been used by Lacey's theory to determine the actual velocity
Option A:	Chezy' Equation
Option B:	General Regime Flow Equation
Option C:	Manning's formula
Option D:	Kutter's formula
Q3.	If the size of the soil particle is 0.45 mm, what will be the Lacey's silt factor
Option A:	1.18
Option B:	0.86
Option C:	0.76
Option D:	0.96

Q4.	The channel after attaining its section and longitudinal slope, will be said to be in
Option A:	Final Regime
Option B:	Initial Regime
Option C:	Permanent Regime
Option D:	True Regime
Q5.	In case of turbulent boundary layer on a flat plate the velocity distribution is greatly influenced by
Option A:	Viscous effect
Option B:	Shear effect
Option C:	Inertia effect
Option D:	Turbulent effect
Q6.	Kennedy, in his silt theory, assumed that the silt is kept in suspension because of eddies generated from the
Option A:	top of the channel
Option B:	Whole perimeter
Option C:	sides of the channel only
Option D:	bottom of the channel only
Q7.	The critical velocity ratio was introduced in Kennedy's critical velocity equation to take into account the effect of
Option A:	Cross-section of the channel
Option B:	Topography
Option C:	Silt grade
Option D:	Roughness of bed

Q8.	The condition for separation and detached flow are
Option A:	$(\partial u/\partial y)$ is zero and negative
Option B:	$(\partial u/\partial y)$ is zero and positive
Option C:	$(\partial u/\partial y)$ is zero
Option D:	$(\partial u/\partial y)$ is negative
Q9.	The velocity of the ideal fluid at any point on the surface of the cylinder is given by
Option A:	$u_0 = 2U \sin \theta$
Option B:	$u_0 = 2U^2 \sin \theta$
Option C:	$u_0 = 2U \sin^2 \theta$
Option D:	$u_0 = 2U \sin^2 2\theta$
Q10.	According to Kennedy' theory the velocity of flow in the channel which keeps the sediment in suspension and do not allow silting is called as
Option A:	Mean velocity
Option B:	Average velocity
Option C:	Critical Velocity
Option D:	Minimum velocity
Q11.	A flat plate 1.5 X 1.5 m moves at 50 km/hr in stationary air density 1.15 kg/m <sup>3</sup> . If the co efficient of drag and lift are 0.15 and 0.17 respectively, determine the lift force
Option A:	187.20 N
Option B:	197.30 N
Option C:	297.30 N

Option D:	287.20 N
Q12.	Specific energy in GVF changes only under which of the following conditions.
Option A:	Difference between bed slope and slope of energy line
Option B:	Both bed slope and energy slope are equal
Option C:	Presence of bed slope alone
Option D:	Presence of energy slope alone
Q13.	circulation developed on the airfoil is given by
Option A:	$\Gamma = \pi C U \cos \alpha$
Option B:	$\Gamma = \pi C U \sin \alpha$
Option C:	$\Gamma = \pi C^2 U \cos \alpha$
Option D:	$\Gamma = \pi C^2 U \sin \alpha$
Q14.	Flow developed due to sudden transition is
Option A:	Gradually varied flow
Option B:	Spatially varied flow
Option C:	Rapidly varied flow
Option D:	Uniform flow
Q15.	There will be a transition from laminar flow to turbulent flow when:
Option A:	Reynolds number increases
Option B:	Reynolds number decreases
Option C:	Reynolds number is the same
Option D:	Froude's number increases

Q16.	When the flow in an open channel is gradually varied, the flow is said to be :
Option A:	Steady uniform flow
Option B:	Steady non-uniform flow
Option C:	unsteady unifrom flow
Option D:	unsteady non-uniform flow
Q17.	Where is hydraulic jump used in industrial applications?
Option A:	Spillways
Option B:	Pipes
Option C:	Pumps
Option D:	Filters
Q18.	Let the top width of a rectangular channel be B and the depth be y, determine the hydraulic radius of the channel.
Option A:	$\frac{By}{B+2y}$
Option B:	$\frac{By}{B+y}$
Option C:	y
Option D:	B
Q19.	Calculate the side slope of a trapezoidal channel section having base 8m, depth 4m and the hydraulic radius is 2.36m.
Option A:	1/6
Option B:	1/3
Option C:	1/2
Option D:	1/4

Q20.	The critical depth of the channel is given by:
Option A:	$\left(\frac{q}{g}\right)^{1/2}$
Option B:	$\left(\frac{q^2}{g}\right)^{1/3}$
Option C:	$\left(\frac{q^3}{g}\right)^{1/4}$
Option D:	$\left(\frac{q^4}{g}\right)^{1/5}$
Q21.	For a channel to be economic which of the following parameters should be minimum.
Option A:	Wetted perimeter
Option B:	Wetted area
Option C:	Section factor
Option D:	Hydraulic depth
Q22.	Energy per unit weight of water measured with respect to the datum is called as:
Option A:	Total energy
Option B:	Specific energy
Option C:	Velocity head
Option D:	Datum head
Q23.	Determine the Hydraulic depth for a triangular channel having side slope of 1H:3V and depth 15m.
Option A:	30m
Option B:	15m
Option C:	7.5m
Option D:	3.75m

Q24.	Estimate the value of Chezy's constant if the value of the friction factor is 0.031.
Option A:	35
Option B:	40
Option C:	45
Option D:	50
Q25.	What is the plot between Total energy and channel position called as?
Option A:	Specific grade line
Option B:	Energy grade line
Option C:	Velocity line
Option D:	Datum line

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	A
Q2.	B
Q3.	A
Q4	A
Q5	A
Q6	D
Q7	C
Q8.	A
Q9.	A
Q10.	C
Q11.	A
Q12.	B
Q13.	B
Q14.	C
Q15.	A
Q16.	B
Q17.	A



Q18.	A
Q19.	C
Q20.	B
Q21.	A
Q22.	B
Q23.	C
Q24.	D
Q25.	B