

University of Mumbai
Examination 2020 under cluster ___ (Lead College Short name)

Program: Civil Engineering

Curriculum Scheme: Rev2016

Examination: Second Year Semester IV Course Code: CEC 406 and

Course Name: Fluid Mechanics II

Time: 1 hour

Max. Marks: 50

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

Q1.	The flow separation occurs when the fluid travels away from the _____
Option A:	Surface
Option B:	Fluid body
Option C:	Adverse pressure gradient
Option D:	Inter-molecular spaces
Q2.	With the boundary layer separation, displacement thickness _____
Option A:	Increases
Option B:	Decreases
Option C:	Remains Same
Option D:	Independent
Q3.	In wind tunnel the speed of the wind is 60 km/hr on a flat plate of size 2.5 m long and 1.5 m wide. The density of air is 1.17 kg/m ³ . The coefficient of lift and drag is 0.8 and 0.14 find the Lift force.
Option A:	487.69 N
Option B:	500.20 N
Option C:	502.78 N
Option D:	480.25 N
Q4.	For a streamlined body to achieve low drag coefficient, the boundary layer must _____
Option A:	Flow over the body
Option B:	Be attached to the body
Option C:	Move away from the body
Option D:	Move parallel to the body
Q5.	Mach number is _____
Option A:	$M=V/C$
Option B:	$M= V/\sqrt{K/h\rho}$
Option C:	$\sqrt{\text{Inertia force} / \text{Elastic Force}}$
Option D:	all
Q6.	The region outside the Mech cone is called

Option A:	zone of action
Option B:	zone of silence
Option C:	control volume
Option D:	none of the above
Q7.	Converging-diverging nozzle is also known as _____
Option A:	Pascal nozzle
Option B:	Bernoulli's nozzle
Option C:	Torricelli's nozzle
Option D:	de Laval' nozzle
Q8.	what is the condition for maximum power transmitted through nozzle
Option A:	$H = 3h_f$
Option B:	$H = 2h_f$
Option C:	$H = h_f$
Option D:	$H = 1/3h_f$
Q9.	Find the maximum power transmitted by a jet of water discharging freely out of nozzle fitted to pipe carries water at $0.0212 \text{ m}^3/\text{s}$. The available Head at the nozzle is 90 m.
Option A:	18.79 KW
Option B:	20.21 KW
Option C:	16.25 KW
Option D:	21.20 KW
Q10.	What is the total loss developed in a series of pipes?
Option A:	Sum of losses in each pipe only
Option B:	Sum of local losses only
Option C:	Sum of local losses plus the losses in each pipe
Option D:	Zero
Q11.	Which among the following is the correct formula for head loss?
Option A:	$Z_1 - Z_2$
Option B:	C
Option C:	$T_2 - T_1$
Option D:	$S_2 - S_1$
Q12.	The pipe diameter is _____
Option A:	Directly proportional to fluid density
Option B:	Directly proportional to mass flow rate
Option C:	Inversely proportional to mass flow rate
Option D:	Directly proportional to fluid velocity
Q13.	A horizontal pipe of diameter 200 mm is connected to another pipe of 400 mm diameter. Rate of flow through pipe is $1.2 \text{ m}^3/\text{s}$. find head loss due to sudden enlargement,
Option A:	38.21m
Option B:	9.55m
Option C:	41.46 m

Option D:	39.10m
Q14.	TEL is _____
Option A:	pressure head
Option B:	summation of Pressure head and datum head
Option C:	summation of pressure head, datum head, and kinetic head
Option D:	none of these
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.	The K.E correction factor α for a circular pipe is equal to
Option A:	2
Option B:	3
Option C:	4
Option D:	6
Q17.	The maximum velocity in a circular pipe when flow is laminar occurs at
Option A:	the top of the pipe
Option B:	the bottom of the pipe
Option C:	the centre of the pipe
Option D:	not necessarily at the centre
Q18.	In a hydroelectric power plant, where is the penstock used?
Option A:	Between dam and the turbine
Option B:	Between turbine and discharge drain
Option C:	Turbine and heat exchanger
Option D:	Heat exchanger and fluid pump
Q19.	Due to which of the following phenomena water hammer is caused
Option A:	Incompressibility of fluid
Option B:	Sudden opening of a valve in a pipeline
Option C:	The material of the pipe being elastic
Option D:	Sudden closure (partial or complete) of a valve in pipe flow
Q20.	What are the assumptions made for a fluid flow through a pipe?
Option A:	Fluid inertia is not taken
Option B:	Viscosity is not taken
Option C:	Volume is not considered
Option D:	Mass is not considered
Q21.	What is the function of a surge tank?
Option A:	It causes water hammer
Option B:	Produces surge in the pipeline
Option C:	Relieves water hammer

Option D:	Supplies water at constant pressure
Q22.	With the increase in flow velocity, Reynolds number _____
Option A:	Increases
Option B:	Decreases
Option C:	Same
Option D:	Independent
Q23.	Example of turbulent flow?
Option A:	Smoking rises from cigarette
Option B:	Flow on a symmetric airfoil
Option C:	Laminar flow
Option D:	Turbulent flow on the airfoil
Q24.	Which among the following is a device that converts a laminar flow into a turbulent flow?
Option A:	Dead Weight Gauge
Option B:	Vacuum Gauge
Option C:	Turbulator
Option D:	Ionization Gauge
Q25.	Eddy viscosity is a turbulent transfer of _____
Option A:	Fluid
Option B:	Heat
Option C:	Momentum
Option D:	Pressure

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

Q14.	C
Q15.	A
Q16.	A
Q17.	C
Q18.	A
Q19.	D
Q20.	A
Q21.	C
Q22.	A
Q23.	A
Q24.	C
Q25.	C