Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2016

Examination: Second Year, Semester IV CBSGS

Course Code: MEC402 and Course Name: Fluid Mechanics

Time: 1 hour Max. Marks: 50

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

Q1.	If a person studies about a fluids motion where pressure forces are considered, what will you call his domain of study?
Option A:	Fluid dynamics
Option B:	Fluid Mechanics
Option C:	Fluid statics
Option D:	Fluid kinematics
Q2.	Weight density of fluid is defined as
Option A:	Volume of fluid / Weight of fluid
Option B:	Mass of fluid / Volume of fluid
Option C:	Weight of fluid x Volume of fluid
Option D:	Weight of fluid /Volume of fluid
Q3.	In Newtonian fluid: A real fluid in which the shear stress is directly proportional to
Option A:	the rate of shear strain
Option B:	the rate of shear stress
Option C:	the rate of tensile strain
Option D:	the rate of compressive strain
Q4.	In the fluid flow the net force $F_x = (F_g)_x + (F_p)_x + (F_v)_x + (F_t)_x + (F_c)_x$ If the force F_t is negligible the equation of motion are called
Option A:	Reynolds's equation
Option B:	Navier-Stokes equation
Option C:	Euler's equation
Option D:	Continuity equation
Q5.	Moment of momentum equation is
Option A:	$T = \rho Q[V_2 r_2 + V_1 r_1]$
Option B:	$T = \rho Q[V_2 r_2 - V_1 r_1]$
Option C:	$T = Q[V_2 r_2 - V_1 r_1]$
Option D:	$T = \rho[V_2 r_2 - V_1 r_1]$
Q6.	Orifice meter is used for measurement of
Option A:	Rate of flow

Option B:	Velocity at point
Option C:	Pressure
Option D:	Temperature
Q7.	Pascal's Law states that the pressure or intensity of pressure at a point in a static fluid is
Option A:	unequal in all directions
Option B:	equal in all directions
Option C:	Only along x direction
Option D:	Only along y direction
Q8.	Pitot tube is used for measurement of
Option A:	Discharge
Option B:	Flow
Option C:	Velocity at point
Option D:	Pressure
Q9.	The force of buoyancy or buoyancy
Option A:	is a vertical force and is equal to the weight of the fluid displaced by the body
Option B:	is a horizontal force and is equal to the weight of the fluid displaced by the body
Option C:	is a vertical force and is equal to the volume of the fluid displaced by the body
Option D:	is a inclined force and is equal to the mass of the fluid displaced by the body
Q10.	Which is the correct Euler's equation of motion
Option A:	$\left(\partial p/_{\sigma}\right) + gdz + vdv = 0$
Option B:	$\left(\partial p/_{\sigma}\right) + dz + vdv = 0$
Option C:	$\left(\partial p/_{\sigma}\right) + gdz + dv = 0$
Option D:	$\partial p + gdz + vdv = 0$
Q11.	Venturimeter is used for measurement of
Option A:	Temperature
Option B:	Rate of Flow
Option C:	Velocity at point
Option D:	Pressure
Q12.	If Reynold's number is less than 2000
Option A:	It is called laminar flow
Option B:	It is called turbulent flow
Option C:	It is called compressible flow
Option D:	It is called unsteady flow

Q13.	Major loss in the pipes because of
Option A:	Sudden expansion of pipe
Option B:	Sudden contraction of pipe
Option C:	friction
Option D:	Bend in pipe
Q14.	The velocity vector in a fluid flow is given as $V = 4x^3i - 10x^2yj + 2tk$. Find the velocity of a fluid particle at (2,1,3) at time t=1
Option A:	55.51 units
Option B:	71.56 units
Option C:	61.26 units
Option D:	51.26 units
Q15.	A stream function is given by $\psi = 5x - 6y$. Calculate the magnitude of resultant velocity
Option A:	5.81 unit/sec
Option B:	7.81 unit/sec
Option C:	9.81 unit/sec
Option D:	10.81 unit/sec
Q16.	An orifice is known as small orifice when the head of liquid from the center of orifice is
Option A:	More than 10 times the depth of orifice
Option B:	Less than 10 times the depth of orifice
Option C:	Less than 5 times the depth of orifice
Option D:	More than 5 times the depth of orifice
Q17.	Sink flow is the flow in which fluid moves
Option A:	radially inwards towards a point where it disappears at a constant rate
Option B:	radially outwards from a point where it disappears at a constant rate
Option C:	radially inwards towards a point where it disappears at variable rate
Option D:	radially outwards from a point where it disappears at a variable rate
Q18.	The Navier- Stokes equation can be used in which of the following applications
Option A:	Automobiles
Option B:	Ocean Currents
Option C:	Airplanes
Option D:	Thermometer
Q19.	The flow of a fluid along a curved path or the flow of a rotating mass of fluid is known as a
Option A:	Vortex flow
Option B:	Steady flow
Option C:	Unsteady flow
Option D:	Uniform flow

Q20.	A 25 cm diameter pipe carries oil of sp.gr. 0.9 at a velocity of 3 m/s. At another section the diameter is 20 cm. Find the velocity at this section.
Option A:	6.68 m/s
Option B:	7.86 m/s
Option C:	4.68 m/s
Option D:	8.50 m/s
Q21.	An orifice is known as large orifice when the head of liquid from the center of orifice is
Option A:	More than 10 times the depth of orifice
Option B:	Less than 10 times the depth of orifice
Option C:	Less than 5 times the depth of orifice
Option D:	More than 5 times the depth of orifice
Q22.	Displacement thickness(δ^*) is given by
Option A:	$\delta^* = \int_0^\delta \left(1 - \frac{U}{u}\right) dy$
Option B:	$\delta^* = \int_0^\delta \frac{u}{U}\left(1 - \frac{U}{u}\right) dy$
Option C:	$\delta^* = \int_0^\delta \left(1 - \frac{U^2}{u^2}\right) dy$
Option D:	$\delta^* = \int_0^\delta \left(1 - \frac{u}{U}\right) dy$
Q23.	Boundary layer thickness (δ) is the distance from the surface of the solid body in the direction perpendicular to flow where the velocity of fluid is equal to
Option A:	Free-stream velocity
Option B:	0.9 times the free-stream velocity
Option C:	0.99 times the free-stream velocity
Option D:	1.99 times the free-stream velocity
Q24.	A flow is said to be Super-Sonic flow if Mach number
Option A:	M = 1.0
Option B:	M<1.0
Option C:	M>1.0
Option D:	No relation between Sonic flow and Mach number
Q25.	Lift force is defined as the force exerted by a flowing fluid on a solid body
Option A:	In the direction of flow
Option B:	Perpendicular to the direction of flow
Option C:	At an angle of 45^0 to the direction of flow
Option D:	At an angle of 60^0 to the direction of flow