## Program: Bachelor of Engineering Curriculum Scheme: Rev2012 Examination: Second Year Semester III Course Code: CEC306 and Course Name: FLUID MECHANICS I

Time: 1 hour

Max. Marks: 50

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

Q1.	Assuming constant temperature condition and air to be an ideal gas, the variation
	in atmospheric pressure with height calculated from fluid statics is
Option A:	linear
Option B:	exponential
Option C:	quadratic
Option D:	cubic
Q2.	For a Newtonian fluid
Option A:	Shear stress is proportional to shear strain
Option B:	Rate of shear stress is proportional to shear strain
Option C:	Shear stress is proportional to rate of shear strain
Option D:	Rate of shear stress is proportional to rate of shear strain
Q3.	In a uniform solid body weighs 50 N in air and 30 N in water. Its specific gravity
	is
Option A:	1.67
Option B:	2.50
Option C:	1.50
Option D:	3.00
Q4.	A static fluid can have
Option A:	non-zero normal and shear stress
Option B:	positive normal stress and zero shear stress
Option C:	negative normal stress and zero shear stress
Option D:	zero normal stress and non-zero shear stress
Q5.	Oil in a hydraulic cylinder is compressed from an initial volume 2 m3 to 1.96 m3.
	If the pressure of oil in the cylinder changes from 40 MPa to 80 MPa during
	compression the bulk modulus of elasticity of oil is
Option A:	8000 MPa
Option B:	4000 MPa
Option C:	2000 MPa
Option D:	1000 MPa
Q6.	Relative density of mercury is
Option A:	1000
Option B:	9.81
Option C:	
Option D:	13.6
Q7.	A stone weighs 450 N in air and 200 N in water. Compute the volume of stone

Option B:   0.15 m <sup>3</sup> Option D:   0.05 m <sup>3</sup> QR   The pressure intensity at a point in water column is given as $3.924$ N/cm <sup>2</sup> . Find the corresponding height of water     QR   The pressure intensity at a point in water column is given as $3.924$ N/cm <sup>2</sup> . Find the corresponding height of water     Option A:   2 m     Option D:   5 m     QP   According to Archimede's principle, if a body is immersed partially or fully in a fluid then the buoyancy force is the weight of fluid displaced by the body.     Option D:   5 m     Option A:   less than     Option B:   more than     Option D:   Uppredictable     Q10.   A fluid flow is represented by the velocity field V= axî+ ayĵ, where a is constant. The equation of stream line passing through a point (1, 2) is     Option B: $x - 2y = 0$ Q10.   A fluid flow is represented by the velocity field V= axî+ ayĵ, where a is constant. The equation of stream line passing through a point (1, 2) is     Option B: $x - y = 0$ Q10.   A fluid flow is represented by the velocity field V= axî+ ayĵ, where a is constant. The equation of stream line passing through a point (1, 2) is     Option D: $2x + y = 0$ Option D: $2x - y = 0$ <th>Option A:</th> <th><math>0.25 \text{ m}^3</math></th>	Option A:	$0.25 \text{ m}^3$
Option C: $0.35 \text{ m}^3$ Q8. The pressure intensity at a point in water column is given as $3.924 \text{ N/cm}^2$ . Find the corresponding height of water   Q9. According to Archimede's principle, if a body is immersed partially or fully in a fluid then the buoyancy force is the weight of fluid displaced by the body.   Qption A: S m   Qption B: decording to Archimede's principle, if a body is immersed partially or fully in a fluid then the buoyancy force is the weight of fluid displaced by the body.   Qption A: less than   Option B: more than   Option D: Unpredictable   Q10. A fluid flow is represented by the velocity field V= axî+ ayî, where a is constant.   The equation of stream line passing through a point (1, 2) is   Option B: $2x + 2y = 0$ Option C: $x + 2y = 0$ Option B: $2x - y = 0$ Q10. The liquid particles at all ferent sections have different velocities   Option B: $2x - y = 0$ Q11. The flow in a pipe or channel is said to be non-uniform when   Option B: The liquid particles at all sections have the same velocities   Option B: The liquid particles at all sections have the same velocities   Option B: The liquid particle	Option B:	0.15 m <sup>3</sup>
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Option A: $C_v + C_c$	Q14.	Coefficient of Discharge is equal to
	Option A:	$C_v + C_c$

Option B:	$C_v/C_c$
Option C:	$C_v - C_c$
Option D:	$C_v * C_c$
Q15.	The pitot tube is used to measure
Option A:	Velocity at stagnation point
Option B:	Stagnation pressure
Option C:	Static pressure
Option D:	Dynamic pressure
Q16.	Find the discharge in $m^3/s$ through a rectangular orifice 3 m wide and 2 m deep fitted to a water tank. The water level in the tank is 4 m above the top edge of the orifice. Thake $C_d=0.62$
Option A:	46.76
Option B:	36.76
Option C:	56.76
Option D:	26.76
•	
Q17.	A water flows through a pipe at a velocity 2 m/s. The pressure gauge reading is 2 bar. The datum head is given to be 2 m. Find the piezometric head. (Assume all Bernoulli's assumptions, Density of water = $1000 \text{ kg/m3}$ , g = $9.8 \text{ m/s2}$ ).
Option A:	12.4 m
Option B:	32.4 m
Option C:	22.4 m
Option D:	42.4 m
Q18.	Which of the following equations is a result of momentum conservation for inviscid
_	steady flows?
Option A:	Bernoulli's equation
Option B:	Navier-Stokes equation
Option C:	First law of thermodynamics
Option D:	Euler's equation
<b>.</b>	
Q19.	During the opening of a valve in a pipe line, the flow is
Option A:	Unsteady
Option B:	Steady
Option C:	Laminar
Option D:	Uniform
Q20.	A flow in which each particle has a definite path and their oaths do not cross each other, is called
Option A:	Steady flow
Option B:	Streamline flow
Option C:	Uniform flow
Option D:	Turbulent flow
Q21.	What is the shape of Cipolletti weir?
Ontion A.	Rectangular

Option B:	Circular
Option C:	Trapezoidal
Option D:	stepped
Q22.	An Ogee weir 5 m long had a head of 40 cm of water. If $CD = 0.61$ , find the
	discharge over the weir.
Option A:	$2.9 \text{ m}^{3}/\text{s}$
Option B:	$3.1 \text{ m}^{3}/\text{s}$
Option C:	$3.3 \text{ m}^{3}/\text{s}$
Option D:	$2.3 \text{ m}^{3}/\text{s}$
Q23.	What is not the way of classifying weir based on the emerging nappe?
Option A:	Weir contraction at the beginning
Option B:	Weir with absence of end contraction
Option C:	Weir with end contraction
Option D:	Weir without end contraction
Q24.	When is orifice called 'large orifice'?
Option A:	If the head of liquid is less than 2.5 times the depth of orifice
Option B:	If the head of liquid is less than 5 times the depth of orifice
Option C:	If the head of liquid is less Hence, 4 times the depth of orifice
Option D:	If the head of liquid is less than 1.5 times the depth of orifice
Q25.	The flow of fluid along curvilinear or curved path is known as
Option A:	Curvilinear Flow
Option B:	Circular Flow
Option C:	Vortex Flow
Option D:	Sink Flow