MTH642

Quiz1+Mid Term Grand Quiz

Quiz#1 Topic (1-44)

Due Date 23-25 Dec2021

Pg84

- Mth642 quiz 1. Silent 25dec2021 (Pg20)
- MTH642 Quiz 1 Solved 25dec2021 (Pg20)
- Mth642 Quiz.1 by (KING) 25dec2021 (Pg20)
- Mth642.quiz1.moeez 25dec2021 (Pg20)
- MTH642 Quiz.1.By (KING of KING) 25dec2021 (Pg30)
- Mth642 quiz 1 25dec2021 (Pg10)
- Mth642 Quiz1 solved 25dec2021 (Pg10)
- Camscanner 12-25-2021 (Pg40)
- Mth642 Quiz#1 (1to41)(25Dec2021).Made by Stylish (Pg244)
- Mth642 quiz1 from 3 groups 25dec2021 (Pg1263)

MTH642

Mid Term Grand Quiz

(27june2021)

Pg81

- Mth642 solved G.Quiz (Pg53)
- MTH642 solved 27june2021 (pg53)
- M@l!k Mth642 grand quiz correct solution (pg103)
- MTH642 grand quiz correct solution by moeez (Pg103)
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- Mth642 mega midterm quiz file (searchable by sahir) (pg428)
- Mth642 grand quiz (Pg210)

MTH642

Quiz1+Mid Term Grand Quiz

Quiz#1 Topic (1-44)

Due Date 23-25 Dec2021

Pg84

- Mth642 quiz 1. Silent 25dec2021 (Pg20)
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MTH642 - Fluid Mechanics (Quiz 1)

Question # 3 of 10 (Start time: 07:37:02 AM, 24 December 2021)

Which on of the following is **NOT** the unit of viscosity?

Select the correct option

○	$kgms^{-2}$
○	Nsm^{-2}
◉	poise
○	Pa.s

MTH642 - Fluid Mechanics (Quiz 1)

Question # 6 of 10 (Start time: 07:39:29 AM, 24 December 2021)

The flow of low-viscosity fluids at high velocities is typically _____.

Select the correct option

○	none of these
○	laminar
○	transitional
◉	turbulent 

MTH642 - Fluid Mechanics (Quiz 1)

Question # 7 of 10 (Start time: 07:40:07 AM, 24 December 2021)

____ is the measure of internal thickness of the fluid.

Select the correct option

○	Stress
◉	Viscosity ✓
○	Volume
○	Momentum

sec(s)

MTH642 - Fluid Mechanics (Quiz 1) **Quiz Start Time: 07:35 AM, 24 December 2021**

Question # 2 of 10 (Start time: 07:36:45 AM, 24 December 2021) **Total Marks: 1**

Fully developed velocity profile V=V(r) represents _____.

Select the correct option

Reload Math Equations

◉	one dimensional flow 
○	two dimensional flow
○	three dimensional flow
○	dimensionless flow

MTH642 - Fluid Mechanics (Quiz 1)

Question # 10 of 10 (Start time: 04:58:28 PM, 25 December 2021)

The fluid velocity _____ with depth.

Select the correct option

○	has no relation
○	increases ✓
○	decreases
○	remains constant

MTH642 - Fluid Mechanics (Quiz 1)

Question # 7 of 10 (Start time: 08:16:50 PM, 25 December 2021)

The dimension of area is _____.

Select the correct option

- ○ L^{-2}
- ○ L^{2} ✓
- ○ L^{-1}
- ○ L^{3}

Question # 4 of 10 (Start time: 04:48:51 PM, 25 December 2021)

Which property allows us to assume that the properties vary continually in space without any jump discontinuities?

Select the correct option

○	Volume
○	Pressure
○	Continuum ✓
○	Density

MTH642 - Fluid Mechanics (Quiz 1)

Question # 1 of 10 (start time: 04:55:44 PM, 25 December 2021)

The magnitude of the drag force depends on _____.

Select the correct option

○	the velocity of the flow
○	the viscosity of the flow ✓
○	the pressure of the flow
○	the momentum of the flow

Question # 10 of 10 (Start time: 04:00:32 PM, 25 December 2021)

At which vertical distance, the pressure in a fluid will be minimum while assuming that the fluid is at rest?

Select the correct option

○	10m
○	20m
○	7m
○	9m

MTH642 – Fluid Mechanics (Quiz 1)

Question # 8 of 10 (Start time: 04:40:14 PM, 25 December 2021)

Which of the following is **NOT** an internal flow?

Select the correct option

○	hot gas flow in a duct
○	unbounded fluid flow over the surface of a wire ✓
○	liquid flow between the two parallel plates
○	water flow in a pipe

MTH642 - Fluid Mechanics (Quiz 1)

Question # 10 of 10 (Start time: 04:41:29 PM, 25 December 2021)

The term **transient** is used for _____.

Select the correct option

○	steady flow
○	developing flow ✓
○	unsteady flow
○	any flow

MTH642 - Fluid Mechanics (Quiz 1)

Question # 9 of 10 (Start time: 03:38:31 PM, 25 December 2021)

If at any point the fluid properties change with respect to time, then the flow is termed as _____.

Select the correct option

○	unsteady flow ✓
○	uniform flow
○	steady flow
○	nonuniform flow

MTH642 - Fluid Mechanics (Quiz 1)

Question # 5 of 10 (Start time: 03:56:42 PM, 25 December 2021)

The quantity of matter or the region in space chosen for study is defined as _____

Select the correct option

- ○ boundary
- ○ system ✓
- ○ imaginary surface
- ○ surrounding

MTH642 - Fluid Mechanics (Quiz 1)

Quiz Start Time: 03:53 PM, 25 December 2021

Question # 6 of 10 (Start time: 03:57:50 PM, 25 December 2021)

Total Marks: 1

Fluid flows between two parallel plates. Assume that the lower plate is at rest while upper one is moving with a constant velocity *V*. The velocity of the fluid in contact with the lower plate is _____.

Select the correct option

Reload Math Equations

○	*2V*
○	*V/2*
○	zero 
○	*V*

MTH642 - Fluid Mechanics (Quiz 1)

Question # 8 of 10 (Start time: 03:37:39 PM, 25 December 2021)

A closed system can also be referred as _____.

Select the correct option

○	isolated system
○	control volume
○	control mass ✓
○	international system

MTH642 - Fluid Mechanics (Quiz 1)

Question # 2 of 10 (Start time: 08:00:31 PM, 25 December 2021)

The no slip condition happens due to _____

Select the correct option

○	pressure
○	density
○	velocity ✓
○	viscosity

MTH642 - Fluid Mechanics (Quiz 1)

Question # 4 of 10 (Start time: 04:58:26 PM, 25 December 2021)

Surface tension is defined as _____.

Select the correct option

- ○ force per unit length ✓
- ○ momentum per unit length
- ○ viscosity per unit length
- ○ stress per unit length

Question # 6 of 10 (Start time: 05:11:50 PM, 25 December 2021)

At which vertical distance, the pressure in a fluid will be maximum while assuming that the fluid is at rest?

Select the correct option

- 7m
- 9m 
- 8m
- 6m

MTH642 - Fluid Mechanics (Quiz 1)

Question # 2 of 10 (Start time: 07:59:55 PM, 25 December 2021)

Stress is defined as _____.

Select the correct option

○	force per unit area ✓
○	momentum per unit area
○	work done per unit area
○	fluid flow per unit area

MTH642 - Fluid Mechanics (Quiz1)

Question # 2 of 10 (Start time: 06:35:40 PM, 25 December 2021)

The unit of velocity is _____.

Select the correct option

○	ms
○	$m^{-1}s$
○	$m^{-1}s^{-1}$
○	ms^{-1} ✓

MTH642 - Fluid Mechanics (Quiz 1)

Question # 10 of 10 (Start time: 07:13:09 PM, 25 December 2021)

_____ is the secondary dimension.

Select the correct option

- Energy ✓
- Temperature
- Length
- Time

MTH642 - Fluid Mechanics (Quiz 1)

Question # 3 of 10 (Start time: 09:55:02 PM, 25 December 2021)

If the fluid is at rest, then which of the following will be zero?

Select the correct option

◉	shear stress 
○	pressure
○	normal stress
○	stress

MTH642 - Fluid Mechanics (Quiz 1)

Question # 8 of 10 (Start time: 05:23:53 PM, 25 December 2021)

In steady flow, _____

Select the correct option

- ○ properties gradually change with time.
- ○ velocity does not change
- ○ pressure changes
- ○ properties do not change with time ✓

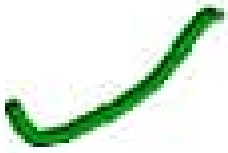
MTH642 - Fluid Mechanics (Quiz 1)

Question # 10 of 10 (Start time: 05:26:08 PM, 25 December 2021)

In a steady flow, the fluid properties _____ at any fixed point.

Select the correct option

- ○ vary
- ○ remain constant



MTH642 - Fluid Mechanics (Quiz 1)

Question # 7 of 10 (Start time: 09:24:55 PM, 25 December 2021)

Surface tension comes into act due to the _____ between the molecules of the liquids.

Select the correct option

○	spaces
○	attractive forces ✓
○	velocity difference
○	energy difference

MTH542 - Fluid Mechanics (Quiz 1)

Question # 8 of 10 (Start time: 05:01:05 PM, 25 December 2021)

Which of the following is a Newtonian fluid?

Select the correct option

- ○ Liquid plastics
- ○ Gasoline ✓
- ○ Blood
- ○ Toothpaste

MTH642 - Fluid Mechanics (Quiz 1)

Question # 3 of 10 (Start time: 03:33:01 PM, 25 December 2021)

The acceleration of the fluid particle is given by_____.

Select the correct option

- $\mathbf{a}_{particle}=d\mathbf{P}_{particle}/dt$
- $\mathbf{a}_{particle}=d\mathbf{T}_{particle}/dt$
- $\mathbf{a}_{particle}=d\mathbf{V}_{particle}/dt$ ✓
- $\mathbf{a}_{particle}=d\mathbf{x}_{particle}/dt$

MTH642 - Fluid Mechanics (Quiz 1)

Question # 5 of 10 (Start time: 10:57:37 PM, 25 December 2021)

An open system can also be referred as _____.

Select the correct option

○	international system
○	control mass
◉	control volume
○	isolated system

MTH642 - Fluid Mechanics (Quiz 1)

Question # 6 of 10 (Start time: 10:58:00 PM, 25 December 2021)

Can a body weighing 150 lbf on earth will weigh only 25 lbf on the moon?

Select the correct option

◉	Yes
○	No

Question # 9 of 10 (Start time: 10:58:50 PM, 25 December 2021)

By Newton's second law, the net force acting on the fluid particle is given as the product of its_____ and_____.

Select the correct option

○	pressure, velocity
○	velocity, time
○	acceleration, time
◉	mass, acceleration

MTH642 - Fluid Mechanics (Quiz 1) Quiz Start Time: 10:56 PM, 25 December 2021

Question # 2 of 10 (Start time: 10:57:00 PM, 25 December 2021) Total Marks: 1

The _____ is commonly used to replace pumps by placing the water tank sufficiently above the solar collectors.

Select the correct option

Reload Math Equations

○	Compton effect
○	thermal effect
○	buoyancy effect
○	thermosiphoning effect

MTH642 - Fluid Mechanics (Quiz 1)

Question # 3 of 10 (Start time: 10:57:10 PM, 25 December 2021)

The friction between the fluid layers causes the fluid velocity to

Select the correct option

◉	decrease
○	increase

Question # 4 of 10 (Start time: 10:57:24 PM, 25 December 2021)

The three terms **acceleration of a fluid particle, local acceleration and advective acceleration** can be related as

Select the correct option

○	acceleration of a fluid particle = local acceleration - advective acceleration
○	acceleration of a fluid particle = local acceleration × advective acceleration
○	acceleration of a fluid particle = local acceleration / advective acceleration
◉	acceleration of a fluid particle = local acceleration + advective acceleration ✓

MTH642 - Fluid Mechanics (Quiz 1)

Question # 7 of 10 (Start time: 10:48:48 PM, 25 December 2021)

Which of the following is called **the local acceleration**?

Select the correct option

○	dV/dt
○	DV/Dt
○	$\Delta V/\Delta t$
◉	$\partial V/\partial t$

MTH642 - Fluid Mechanics (Quiz 1)

Question # 9 of 10 (Start time: 10:50:11 PM, 25 December 2021)

Can a body weighing 150 lbf on earth will weigh only 25 lbf on the moon?

Select the correct option

○	No
○	Yes 

MTH642 - Fluid Mechanics (Quiz 1)

Question # 10 of 10 (Start time: 10:50:58 PM, 25 December 2021)

In _____, each fluid particle follows the identical path.

Select the correct option

○	fluid flow
○	laminar flow
◉	turbulent flow
○	developing flow

MTH642 - Fluid Mechanics (Quiz 1)

Question # 4 of 10 (Start time: 10:47:56 PM, 25 December 2021)

If a fluid is at rest, then shear stress equals to_____.

Select the correct option

◉	zero 
○	none of these
○	pressure
○	normal stress

MTH642 - Fluid Mechanics (Quiz 1)

Question # 3 of 10 (Start time: 10:47:04 PM, 25 December 2021)

Viscosity is caused by _____.

Select the correct option

○	cohesive forces between the molecules in liquids
○	friction force develops between two fluid layers when they move
○	All ✓
○	molecular collisions in gases

MTH642 - Fluid Mechanics (Quiz 1)

Question # 4 of 10 (Start time: 10:40:36 PM, 25 December 2021)

Which of the following statement(s) is/are true?

1. A liquid does not form a free surface.
2. Gas expands to fill the entire available space.

Select the correct option

◉	1 and 2 both ✓
○	Neither 1 nor 2
○	2 only
○	1 only

MTH642 - Fluid Mechanics (Quiz 1)

Question # 9 of 10 (Start time: 10:42:40 PM, 25 December 2021)

The local acceleration will be zero for

Select the correct option

○	unsteady flow
○	steady flow

MTH642 - Fluid Mechanics (Quiz 1)

Question # 1 of 10 (Start time: 10:45:44 PM, 25 December 2021)

Flow having significant frictional effects is termed as _____.

Select the correct option

◉	viscous flow ✓
○	inviscid flow
○	external flow
○	internal flow

MTH642 - Fluid Mechanics (Quiz 1)

Question # 5 of 10 (Start time: 10:34:50 PM, 25 December 2021)

The flow is _____ for Mach number less than one.

Select the correct option

◉	subsonic
○	supersonic
○	sonic
○	hypersonic.

MTH642 - Fluid Mechanics (Quiz 1)

Question # 6 of 10 (Start time: 10:35:43 PM, 25 December 2021)

The are _____ primary dimensions.

Select the correct option

○	six
○	seven 
○	five
○	eight

Question # 2 of 10 (Start time: 10:40:05 PM, 25 December 2021)

The Greek mathematician Archimedes applied _____ to determine the gold content of the crown of King Hiero.

Select the correct option

○	the law of conservation of mass
◉	the buoyancy principle
○	the gravity principle
○	the law of conservation of momentum

MTH642 - Fluid Mechanics (Quiz 1)

Question # 7 of 10 (Start time: 10:30:26 PM, 25 December 2021)

By definition, the acceleration of the fluid particle is the time derivative of __

Select the correct option

○	the fluid's pressure
◉	the fluid's velocity 
○	the fluid's momentum
○	the fluid's displacement

MTH642 - Fluid Mechanics (Quiz 1)

Question # 10 of 10 (Start time: 10:32:18 PM, 25 December 2021)

The advective acceleration is given by _____.

Select the correct option

○	$V \bullet \nabla$
○	$\nabla \bullet V$
◉	$(V \bullet \nabla)V$
○	$\partial V / \partial t$

MTH642 - Fluid Mechanics (Quiz 1)

Question # 1 of 10 (Start time: 10:33:58 PM, 25 December 2021)

For fluid at rest, the shear stress is

Select the correct option

○	undefined
○	maximum
◉	zero 
○	minimum

MTH642 - Fluid Mechanics (Quiz 1)

Question # 5 of 10 (Start time: 10:28:57 PM, 25 December 2021)

The number of significant digits in 1.500 is

Select the correct option

○	3
○	1
◉	4
○	2

MTH642 - Fluid Mechanics (Quiz 1)

Question # 6 of 10 (Start time: 10:29:43 PM, 25 December 2021)

In which direction, the pressure will not change if the fluid is at rest?

Select the correct option

○	direction along the negative slop
○	vertical direction
○	direction along the positive slop
○	horizontal direction ✓

MTH642 - Fluid Mechanics (Quiz 1)

Question # 3 of 10 (Start time: 10:21:08 PM, 25 December 2021)

The substance in liquid or gas phase is referred as

Select the correct option

○	ions
◉	fluid
○	electrolyte
○	plasma

MTH642 - Fluid Mechanics (Quiz 1)

Question # 5 of 10 (Start time: 10:21:44 PM, 25 December 2021)

Which of the following is **NOT** a drived dimension?

Select the correct option

○	Velocity
○	Length 
○	Volume
◉	Area

MTH642 – Fluid Mechanics (Quiz 1)

Question # 10 of 10 (Start time: 10:24:35 PM, 25 December 2021)

Which of the following statements is/are true?
1: Solids can resist applied shear stress by deforming.
2: liquids cannot resist applied shear stress and continuously deform.

Select the correct option

○	2 only
○	nether 1 nor 2
◉	both 1 and 2 ✓
○	1 only

MTH642 - Fluid Mechanics (Quiz 1)

Question # 4 of 10 (Start time: 10:28:16 PM, 25 December 2021)

In inviscid flow region, the viscous forces are negligibly small compared to____.

Select the correct option

○	Both (a) and (c)
◉	inertial or pressure forces ✓
○	gravitational forces
○	buoyant forces

Question # 8 of 10 (Start time: 10:16:32 PM, 25 December 2021)

The pressure applied to a confined fluid increases the pressure throughout by the same amount. This law is known as _____

Select the correct option

Reloc

○	Euler's law
○	Pascal's law 
◉	Newton's law
○	Ohm's Law

MTH642 – Fluid Mechanics (Quiz 1)

Question # 1 of 10 (Start time: 10:20:45 PM, 25 December 2021)

The flow regions in which the frictional effects are negligible are termed as _____ flow regions.

Select the correct option

○	external
◉	inviscid
○	viscous
○	internal

MTH642 - Fluid Mechanics (Quiz 1)

Question # 2 of 10 (Start time: 10:20:56 PM, 25 December 2021)

The boundary layer is developed very close to the wall by flowing fluid due to _____.

Select the correct option

○	Gravity
◉	Viscosity
○	Density
○	Surface Tension

Question # 2 of 10 (Start time: 10:12:03 PM, 25 December 2021)

In what type of flow, the mass, volume and energy content of the flow section do not change?

Select the correct option

○	Steady flow ✓
○	Uniform flow
○	Nonuniform flow
○	Unsteady flow

Question # 5 of 10 (Start time: 10:13:54 PM, 25 December 2021)

A fluid flow is classified as viscous or inviscid flow region, depending on_____.

Select the correct option

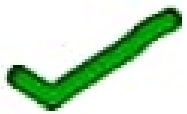
○	internal stress of the fliuid
○	fluid momentum
◉	frictional effects between the layers of the fluid ✓
○	internal temperature of the fluid

Question # 6 of 10 (Start time: 10:14:41 PM, 25 December 2021)

In which of the following system, the amount of mass is fixed and no mass and even energy can cross its boundary?

Select the correct option

Rel

○	International system
○	Open system
○	Closed system 
○	Isolated system

MTH642 - Fluid Mechanics (Quiz 1)

Question # 9 of 10 (Start time: 10:07:04 PM, 25 December 2021)

A flow may be approximated _____ when the aspect ratio is large.

Select the correct option

○	three-dimensional
○	one-dimensional
○	zero-dimensional
○	two-dimensional 

MTH642 - Fluid Mechanics (Quiz 1)

Question # 10 of 10 (Start time: 10:07:44 PM, 25 December 2021)

If a normal force of one newton is exerted by the fluid per unit area, then the pressure will be _____.

Select the correct option

○	1 atm
○	1 bar
○	1kgf /cm^2
◉	1 Pa

MTH642 - Fluid Mechanics (Quiz 1)

Question # 1 of 10 (Start time: 10:10:50 PM, 25 December 2021)

In which of the following, the rate of deformation is proportional to the shear stress?

Select the correct option

◉	Newtonian fluids ✓
○	Dilatant
○	Pseudoplastics
○	Bingham Plastics

MTH642 – Fluid Mechanics (Quiz 1)

Question # 9 of 10 (Start time: 09:56:58 PM, 25 December 2021)

Barometer is a device used to measure _____.

Select the correct option

◉	atmospheric pressure ✓
○	partial pressure
○	saturation pressure
○	vapor pressure

MTH642 – Fluid Mechanics (Quiz 1)

Question # 10 of 10 (Start time: 09:57:15 PM, 25 December 2021)

If there is no change with location over a specified region then the flow is termed as _____.

Select the correct option

◉	steady flow
○	unsteady flow
○	nonuniform flow
○	uniform flow 

Question # 3 of 10 (Start time: 10:04:09 PM, 25 December 2021)

The pressure exerted by the vapor of a pure substance in phase equilibrium with its liquid at given temperature is called __

Select the correct option

Rel

- ○ vapor pressure
- ○ saturation pressure
- ○ partial pressure
- ◉ atmospheric pressure

MTH642 - Fluid Mechanics (Quiz 1)

Question # 4 of 10 (Start time: 10:04:26 PM, 25 December 2021)

The number of significant digits in 10.660 is _____.

Select the correct option

○	2
○	4
◉	5 
○	3

MTH642 - Fluid Mechanics (Quiz 1)

Question # 7 of 10 (Start time: 09:55:44 PM, 25 December 2021)

The mathematical form of fluid properties, velocity (V) and density (ρ), in unsteady flow is _

Select the correct option

◉	$\frac{\partial V}{\partial t} \neq 0 \; and \; \frac{\partial \rho}{\partial t} \neq 0$ ✓
○	$\frac{\partial V}{\partial t} \neq 0 \; and \; \frac{\partial \rho}{\partial t} = 0$
○	$\frac{\partial V}{\partial t} = 0 = \frac{\partial \rho}{\partial t}$
○	$\frac{\partial V}{\partial t} = 0 \; and \; \frac{\partial \rho}{\partial t} \neq 0$

MTH642 - Fluid Mechanics (Quiz 1)

Question # 8 of 10 (Start time: 09:56:04 PM, 25 December 2021)

Manometer is a device used to measure _____.

Select the correct option

○	volume differences
○	velocity differences
○	pressure differences ✓
○	energy differences

MTH642 - Fluid Mechanics (Quiz 1)

Question # 3 of 10 (Start time: 09:52:48 PM, 25 December 2021)

If density is defined as mass per unit volume then what will be the specific volume?

Select the correct option

○	volume × unit mass
○	volume + unit mass
○	volume - mass
◉	volume / unit mass

MTH642 - Fluid Mechanics (Quiz 1)

Question # 4 of 10 (Start time: 09:53:04 PM, 25 December 2021)

Which one of the following is **NOT** a secondary dimension?

Select the correct option

◉	Temperature 
○	Acceleration
○	Momentum
○	Velocity

MTH642 - Fluid Mechanics (Quiz 1)

Question # 6 of 10 (Start time: 09:55:28 PM, 25 December 2021)

One-, Two- and Three-Dimensional flows are characterized by _____.

Select the correct option

○	energy distribution
○	mass distribution
◉	velocity distribution 
○	momentum distribution

MTH642 - Fluid Mechanics (Quiz 1)

Quiz Start Time: 09:39 PM, 25 December 2021

Question # 10 of 10 (start time: 09:47:41 PM, 25 December 2021)

Total Marks: 1

Fluid flows between two parallel plates. Assume that the lower plate is at rest while upper one is moving with a constant velocity *V*. According to no-slip condition, the relative velocity of the fluid in contact with the upper plate is _____.

Select the correct option

Reload Math Equations

○	*2V*
○	zero
○	*V/2*
○	*V* ✓

MTH642 - Fluid Mechanics (Quiz 1)

Question # 1 of 10 (Start time: 09:51:12 PM, 25 December 2021)

The fluid forced to flow in a confined channel is classified as being _____.

Select the correct option

○	natural flow
◉	viscous flow
○	internal flow 
○	compressible flow

MTH642 - Fluid Mechanics (Quiz 1)

Question # 2 of 10 (Start time: 09:51:35 PM, 25 December 2021)

Viscosity is a measure of internal _____ of the fluid.

Select the correct option

◉	thickness ✓
○	stress
○	momentum
○	temperature

MTH642 - Fluid Mechanics (Quiz 1)

Question # 3 of 10 (Start time: 09:40:53 PM, 25 December 2021)

Which of the following may **NOT** have a free surface?

Select the correct option

○	An open container filled with water
○	An open container filled with hydrogen gas ✓
○	An open container filled with oil
○	An open container filled with liquid mercury

MTH642 - Fluid Mechanics (Quiz 1)

Question # 6 of 10 (Start time: 09:43:28 PM, 25 December 2021)

The developing velocity profile **V(r,z)** represents _____.

Select the correct option

○	one dimensional flow
○	three dimensional flow
○	dimensionless flow
◉	two dimensional flow ✓

MTH642 - Fluid Mechanics (Quiz 1)

Question # 9 of 10 (Start time: 09:46:55 PM, 25 December 2021)

Which one of the following is **NOT** a primary dimension?

Select the correct option

○	Time
○	Area 
○	Length
○	Mass

MTH642 - Fluid Mechanics (Quiz 1)

Question # 2 of 10 (Start time: 09:40:05 PM, 25 December 2021)

For unsteady flows the local acceleration will be

Select the correct option

○	zero
◉	nonzero

MTH642 - Fluid Mechanics (Quiz 1)

Question # 6 of 10 (Start time: 10:48:32 PM, 25 December 2021)

Which of the following is an extensive property?

Select the correct option

○	Density
○	Pressure
◉	Total mass
○	Temperature

MTH642 - Fluid Mechanics (Quiz 1)

Question # 5 of 10 (Start time: 10:48:17 PM, 25 December 2021)

In solids stress is proportional to strain but in fluids stress is proportional to strain rate.

Select the correct option

○	False
◉	True

MTH642 - Fluid Mechanics (Quiz 1)

Question # 9 of 10 (Start time: 08:06:18 PM, 25 December 202

Which one of the following is a primary dimension?

Select the correct option

○	Energy
○	Time 
○	Velocity
○	Volume

MTH642 - Fluid Mechanics (Quiz 1)

Question # 6 of 10 (Start time: 06:39:57 PM, 25 December 2021)

The flow having velocity $\mathbf{V} = (-y, x)$ is _____.

Select the correct option

- ○ three-dimensional
- ○ one-dimensional
- ○ zero-dimensional
- ○ two-dimensional ✓

MTH642 - Fluid Mechanics (Quiz1)

Question # 3 of 10 (Start time: 06:37:02 PM, 25 December 2021)

Newton's second law applied to the fluid particle, is given as _____.

Select the correct option

○	$\mathbf{F}_{particle} = m_{particle} - \mathbf{a}_{particle}$
○	$\mathbf{F}_{particle} = m_{particle} * \mathbf{a}_{particle}$ ✓
○	$\mathbf{F}_{particle} = m_{particle} / \mathbf{a}_{particle}$
○	$\mathbf{F}_{particle} = m_{particle} + \mathbf{a}_{particle}$

Question # 10 of 10 (Start time: 05:13:05 PM, 25 December 2021)

At which vertical distance, the pressure in a fluid will be minimum while assuming that the fluid is at rest?

Select the correct option

- ○ 20m
- ○ 9m
- ○ 7m
- ○ 10m

MTH642 - Fluid Mechanics (Quiz 1)

Question # 3 of 10 (Start time: 04:57:20 PM, 25 December 2021)

The developing flow in a circular pipe, in cylindrical coordinate system, is _____

Select the correct option

- ○ one-dimensional
- ○ zero-dimensional
- ○ two-dimensional ✓
- ○ three-dimensional

MTH542 - Fluid Mechanics (Quiz 1)

Question # 5 of 10 (Start time: 03:56:42 PM, 25 December 2021)

The quantity of matter or the region in space chosen for study is defined as _____.

Select the correct option

○	boundary
○	system ✓
○	imaginary surface
○	surrounding

MTH642

Mid Term Grand Quiz

(27 june 2021)

Pg81

- Mth642 solved G.Quiz (Pg53)
- MTH642 solved 27june2021(pg53)
- M@l!k Mth642 grand quiz correct solution (pg103)
- MTH642 grand quiz correct solution by moeez (Pg103)
- MTH642 grand quiz correct solution by moeez 27june2021(Pg58)
- Mth642 mega midterm quiz file (searchable by sahir) (pg428)
- Mth642 grand quiz (Pg210)

MTH642:Grand Quiz

Question # 1 of 30 (Start time: 09:00:35 AM, 27 June 2021)

Manometer is a device used to measure _____.

Select the correct option

- ○ pressure differences ✓
- ○ energy differences
- ○ volume differences
- ○ velocity differences

MTH642:Grand Quiz

Quiz Sta

Question # 2 of 30 (Start time: 09:01:16 AM, 27 June 2021)

The substance in liquid or gas phase is referred as

Select the correct option

- electrolyte
- fluid ✔
- plasma
- ions

MTH642:Grand Quiz

Question # 3 of 30 (Start time: 09:02:06 AM, 27 June 2021)

Fully developed velocity profile V=V(r) represents _____.

Select the correct option

○	dimensionless flow
○	one dimensional flow
○	two dimensional flow
○	three dimensional flow

MTH642:Grand Quiz

Question # 4 of 30 (Start time: 09:03:01 AM, 27 June 2021)

Surface tension comes into act due to the _____ between the molecules of the liquids.

Select the correct option

- spaces
- velocity difference
- energy difference
- attractive forces

Question # 5 of 30 (Start time: 09:04:31 AM, 27 June 2021)

Which property allows us to assume that the properties vary continually in space without any jump discontinuities?

Select the correct option

- Pressure
- Continuum
- Volume
- Density

MTH642:Grand Quiz

Question # 6 of 30 (Start time: 09:05:46 AM, 27 June 2021)

The quantity of matter or the region in space chosen for study is defined as _____.

Select the correct option

- imaginary surface
- boundary
- surrounding
- system

MTH642:Grand Quiz

Question # 7 of 30 (Start time: 09:06:53 AM, 27 June 2021)

Which of the following is the total derivative operator?

Select the correct option

- ○ ∂
- ○ Δ
- ● d
- ○ D

MTH642:Grand Quiz

Question # 8 of 30 (Start time: 09:07:31 AM, 27 June 2021)

Surface tension is defined as _____.

Select the correct option

- ○ stress per unit length
- ○ momentum per unit length
- ○ viscosity per unit length
- ○ force per unit length 

MTH642:Grand Quiz

Question # 9 of 30 (Start time: 09:08:36 AM, 27 June 2021)

If there is no change with location over a specified region then the flow is termed as _____.

Select the correct option

- uniform flow
- unsteady flow
- nonuniform flow
- steady flow

MTH642:Grand Quiz

Question # 10 of 30 (Start time: 09:09:41 AM, 27 June 2021)

In which direction, the pressure will not change if the fluid is at rest?

Select the correct option

○	direction along the negative slop
○	horizontal direction
○	direction along the positive slop
○	vertical direction

MTH642:Grand Quiz

Question # 11 of 30 (Start time: 09:11:33 AM, 27 June 2021)

The pressure of a gas or vapor in a mixture with other gases is defined as _____.

Select the correct option

- static pressure
- partial pressure 
- vapor pressure
- saturation pressure

MTH642:Grand Quiz

Question # 12 of 30 (Start time: 09:12:29 AM, 27 June 2021)

If at any point the fluid properties change with respect to time, then the flow is termed as _____.

Select the correct option

- steady flow
- unsteady flow
- nonuniform flow
- uniform flow

MTH642:Grand Quiz

Question # 16 of 30 (Start time: 09:17:27 AM, 27 June 2021)

By Newton's second law, the net force acting on the fluid particle is given as the product of its_____ and_____.

Select the correct option

○	pressure, velocity
○	acceleration, time
○	mass, acceleration
○	velocity, time

MTH642:Grand Quiz

Question # 15 of 30 (Start time: 09:16:06 AM, 27 June 2021)

A closed system can also be referred as _____.

Select the correct option

- ○ international system
- ○ isolated system
- ○ control mass
- ○ control volume

MTH642:Grand Quiz

Question # 14 of 30 (Start time: 09:14:43 AM, 27 June 2021)

The flow regions in which the frictional effects are negligible are termed as _____ flow regions.

Select the correct option

○	viscous
○	external
○	internal
○	inviscid

MTH642:Grand Quiz

Question # 18 of 30 (Start time: 09:19:41 AM, 27 June 2021)

System is the contact surface shared by both boundary and surrounding.

Select the correct option

○	True
○	False

MTH642:Grand Quiz

Question # 20 of 30 (Start time: 09:21:13 AM, 27 June 2021)

If density is defined as mass per unit volume then what will be the specific volume?

Select the correct option

○	volume + unit mass
○	volume / unit mass
○	volume × unit mass
○	volume - mass

MTH642:Grand Quiz

Question # 21 of 30 (Start time: 09:21:57 AM, 27 June 2021)

Which of the following may **NOT** have a free surface?

Select the correct option

○	An open container filled with hydrogen gas
○	An open container filled with water
○	An open container filled with liquid mercury
○	An open container filled with oil

MTH642:Grand Quiz

Question # 22 of 30 (Start time: 09:23:27 AM, 27 June 2021)

Which of the following is an extensive property?

Select the correct option

○	Total mass
○	Density
○	Temperature
○	Pressure

MTH642:Grand Quiz

Question # 23 of 30 (Start time: 09:24:11 AM, 27 June 2021)

The dimension of area is _____.

Select the correct option

○	L^2
○	L^{-1}
○	L^3
○	L^{-2}

MTH642:Grand Quiz

Question # 24 of 30 (Start time: 09:25:11 AM, 27 June 2021)

The friction between the fluid layers causes the fluid velocity to

Select the correct option

- ○ decrease
- ○ increase

MTH642:Grand Quiz

Question # 19 of 30 (Start time: 09:20:39 AM, 27 June 2021)

Newton's second law applied to the fluid particle, is given as _____.

Select the correct option

○	$F_{particle} = m_{particle} + a_{particle}$
●	$F_{particle} = m_{particle} \times a_{particle}$
○	$F_{particle} = m_{particle} - a_{particle}$
○	$F_{particle} = m_{particle} / a_{particle}$

MTH642:Grand Quiz

Question # 25 of 30 (Start time: 09:26:41 AM, 27 June 2021)

The fluid forced to flow in a confined channel is classified as being _____.

Select the correct option

○	internal flow
○	viscous flow
○	natural flow
○	compressible flow

MTH642:Grand Quiz

Question # 26 of 30 (Start time: 09:28:29 AM, 27 June 2021)

In which of the following, the rate of deformation is proportional to the shear stress?

Select the correct option

- ○ Bingham Plastics
- ○ Pseudoplastics
- ○ Newtonian fluids ✓
- ○ Dilatant

Question # 28 of 30 (Start time: 09:31:46 AM, 27 June 2021)

Total Marks:

Which of the following statements is/are true?
1: Solids can resist applied shear stress by deforming.
2: liquids cannot resist applied shear stress and continuously deform.

Select the correct option

- both 1 and 2
- 2 only
- nether 1 nor 2
- 1 only

MTH642:Grand Quiz

Question # 29 of 30 (Start time: 09:33:11 AM, 27 June 2021)

Stress is defined as _____.

Select the correct option

○	work done per unit area
○	force per unit area
○	fluid flow per unit area
○	momentum per unit area

MTH642:Grand Quiz

Question # 30 of 30 (Start time: 09:33:53 AM, 27 June 2021)

Viscosity is caused by _____.

Select the correct option

○	cohesive forces between the molecules in liquids
○	friction force develops between two fluid layers when they move
○	molecular collisions in gases
○	All ✓

An open system can also be referred as _____.

Select the correct option

- ○ international system
- ● control mass
- ○ isolated system
- ○ control volume

Question # 1 of 30 (Start time: 09:37:32 AM, 27 June 2021)

The advective acceleration is given by _____.

Select the correct option

- ○ $\partial V / \partial t$
- ○ $(V \bullet \nabla)V$
- ○ $\nabla \bullet V$
- ○ $V \bullet \nabla$

Question # 5 of 30 (Start time: 09:41:35 AM, 27 June 2021)

Which one of the following is **NOT** a secondary dimension?

Select the correct option

- ○ Velocity
- ○ Temperature ✓
- ○ Acceleration
- ○ Momentum

The pressure exerted by the vapor of a pure substance in phase equilibrium with its liquid at given temperature is called _____.

Select the correct option

- ○ vapor pressure ✓
- ○ atmospheric pressure
- ○ saturation pressure
- ○ partial pressure

Question # 10 of 30 (Start time: 09:48:18 AM, 27 June 2021)

If a normal force of one newton is exerted by the fluid per unit area, then the pressure will be _____.

Select the correct option

- ○ 1 atm
- ○ 1 bar
- ○ 1kgf /cm^2
- ○ 1 Pa

Question # 12 of 30 (Start time: 09:50:42 AM, 27 June 2021)

In which of the following system, the amount of mass is fixed and no mass and even energy can cross its boundary?

Select the correct option

○	Closed system
○	Open system
○	Isolated system
○	International system

Question # 15 of 30 (Start time: 09:54:23 AM, 27 June 2021)

One-, Two- and Three-Dimensional flows are characterized by _____.

Select the correct option

○	mass distribution
○	velocity distribution ✓
○	momentum distribution
○	energy distribution

MTH642:Grand Quiz

Question # 15 of 30 (Start time: 09:54:23 AM, 27 June 2021)

Which of the following is **NOT** an internal flow?

Select the correct option

- ○ unbounded fluid flow over the surface of a wire ✓
- ○ hot gas flow in a duct
- ○ liquid flow between the two parallel plates
- ○ water flow in a pipe

Which of the following is **NOT** a drived dimension?

Select the correct option

○	Area
○	Volume
○	Velocity
○	Length

Which of the following is called **the local acceleration?**

Select the correct option

- ○ $\partial V / \partial t$
- ○ dV / dt
- ○ $\Delta V / \Delta t$
- ○ DV / Dt

MTH642:Grand Quiz

Question # 22 of 30 (Start time: 10:03:03 AM, 27 June 2021)

The number of significant digits in 10.660 is _____.

Select the correct option

○	2
○	4
○	3
○	5

Question # 10 of 30 (Start time: 12:46:51 PM, 27 June 2021)

The local acceleration will be zero for

Select the correct option

- unsteady flow
- steady flow ✓

Question # 25 of 30 (Start time: 12:39:43 PM, 27 June 2021)

The flow of an unbounded fluid over a surfacel is classified as being _____.

Select the correct option

○	natural flow
○	external flow ✓
○	forced flow
○	internal flow

MTH642:Grand Quiz

Question # 30 of 30 (Start time: 12:44:08 PM, 27 June 2021)

The unit of velocity is _____.

Select the correct option

- ○ ms
- ○ $m^{-1}s$
- ○ ms^{-1}
- ○ $m^{-1}s^{-1}$

By definition, the acceleration of the fluid particle is the time derivative of _____.

Select the correct option

- ○ the fluid's momentum
- ○ the fluid's displacement
- ○ the fluid's pressure
- ○ the fluid's velocity ✓

MTH642:Grand Quiz

Question # 13 of 30 (Start time: 09:13:46 AM, 27 June 2021)

Viscosity is a measure of internal ____ of the fluid.

Select the correct option

- ○ stress
- ○ temperature
- ○ thickness ✓
- ○ momentum

MTH642:Grand Quiz

Question # 4 of 30 (Start time: 10:21:24 AM, 27 June 2021)

The magnitude of the drag force depends on _____

Select the correct option

- the momentum of the flow
- the viscosity of the flow
- the pressure of the flow
- the velocity of the flow

MTH642:Grand Quiz

Question # 30 of 30 (Start time: 10:44:30 AM, 27 June 2021)

In a steady flow, the fluid properties _____ at any fixed point.

Select the correct option

- ○ vary
- ○ remain constant ✓

MTH642:Grand Quiz

Question # 10 of 30 (Start time: 10:48:28 AM, 27 June 202

Flow having significant frictional effects is termed as ___

Select the correct option

○	external flow
○	viscous flow ✓
○	internal flow
○	inviscid flow

Question # 29 of 30 (Start time: 10:43:18 AM, 27 June 2021)

Total Marks: 1

In solids stress is proportional to strain but in fluids stress is proportional to strain rate.

Select the correct option

- o True
- o False

MTH642:Grand Quiz

Question # 25 of 30 (Start time: 10:40:01 AM, 27 June 2021)

In what type of flow, the mass, volume and energy content of the flow section do not change?

Select the correct option

- Steady flow
- Uniform flow
- Unsteady flow
- Nonuniform flow

MTH642:Grand Quiz

Question # 17 of 30 (Start time: 09:18:04 AM, 27 June 2021)

Which of the following statement(s) is/are true?

1. A liquid does not form a free surface.
2. Gas expands to fill the entire available space.

Select the correct option

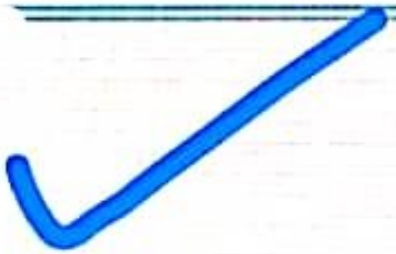
- 2 only
- 1 only
- Neither 1 nor 2
- 1 and 2 both ✓

Question # 11 of 30 (Start time: 09:49:51 AM, 27 June 2021)

Which one of the following is a primary dimension?

Select the correct option

○	Velocity
○	Volume
○	Energy
○	Time



MTH642:Grand Quiz

Question # 27 of 30 (Start time: 09:30:10 AM, 27 June 2021)

The developing velocity profile V(r,z) represents _____.

Select the correct option

○	three dimensional flow
○	one dimensional flow
○	dimensionless flow
○	two dimensional flow

MTH642:Grand Quiz

Question # 11 of 30 (Start time: 10:26:39 AM, 27 June 2021)

Barometer is a device used to measure _____.

Select the correct option

- atmospheric pressure
- saturation pressure
- partial pressure
- vapor pressure

Which one of the following is a secondary dimension?

Select the correct option

- ○ Mass
- ○ Length
- ○ Acceleration ✓
- ○ Temperature

Question # 15 of 30 (Start time: 10:29:25 AM, 27 June 2021)

The are _____ primary dimensions.

Select the correct option

- seven
- six
- five
- eight

The Greek mathematician Archimedes applied _____ to determine the gold content of the crown of King Hiero.

Select the correct option

○	the law of conservation of mass
○	the law of conservation of momentum
○	the buoyancy principle
○	the gravity principle

Question # 29 of 30 (Start time: 10:07:34 AM, 27 June 2021)

Newton's second law applied to the fluid particle, is given as _____.

Select the correct option

○	$F_{particle} = m_{particle} / a_{particle}$
○	$F_{particle} = m_{particle} - a_{particle}$
○	$F_{particle} = m_{particle} + a_{particle}$
○	$F_{particle} = m_{particle} \times a_{particle}$ ✓

Question # 11 of 30 (Start time: 10:17:19 AM, 27 June 2021)

The three terms **acceleration of a fluid particle, local acceleration and advective acceleration** can be related as:

Select the correct option

○	acceleration of a fluid particle = local acceleration + advective acceleration ✓
○	acceleration of a fluid particle = local acceleration / advective acceleration
○	acceleration of a fluid particle = local acceleration - advective acceleration
○	acceleration of a fluid particle = local acceleration * advective acceleration

MTH642:Grand Quiz

Question # 17 of 30 (Start time: 10:32:40 AM, 27 June 2021)

___ is the measure of internal thickness of the fluid.

Select the correct option

- Momentum
- Volume
- Viscosity
- Stress

MTH642:Grand Quiz

Question # 23 of 30 (Start time: 12:53:22 PM, 27 June 2021)

Can a body weighing 150 lbf on earth will weigh only 25 lbf on the moon?

Select the correct option

○	Yes ✓
	No

MTH642 Grand Quiz

Question # 4 of 30 (Start time: 10:30:48 AM, 27 June 2021)

Which of the following is a Newtonian fluid?

Select the correct option

- ○ Liquid plastics
- ○ Toothpaste
- ○ Blood
- ● Gasoline ✓

Question # 26 of 30 (Start time: 10:08:58 AM, 27 June 2021)

The pressure applied to a confined fluid increases the pressure throughout by the same amount. This law is known as _____

Select the correct option

○	Pascal's law
○	Ohm's Law
○	Euler's law
○	Newton's law

MTH642:Grand Quiz

Question # 25 of 30 (Start time: 10:07:33 AM, 27 June 2021)

In which of the following, the rate of deformation is proportional to the shear stress?

Select the correct option

- ○ Dilatant
- ○ Pseudoplastics
- ○ Bingham Plastics
- ○ Newtonian fluids ✓

If the fluid is at rest, then which of the following will be zero?

Select the correct option

- stress
- normal stress
- pressure
- shear stress

Question # 27 of 30 (Start time: 10:41:23 AM, 27 June 2021)

For fluid at rest, the shear stress is

Select the correct option

- o maximum
- o zero ✓
- o undefined
- o minimum

➢ Viscosity is the measure of internal ____ of the liquid ?

a) Resistance M(024)
b) Stress
c) Temperature
d) Thickness ✓

- It appears that there is a property that represents the internal resistance of a fluid to motion or the "fluidity," and that property is the viscosity.

➢ In which direction, the pressure will not change if the fluid is at rest ?

a) Horizontal direction ✓ M(031)
b) Direction along –ve slop
c) Direction along +ve slop
d) Vertical direction

- Pressure in a fluid at rest does not change in the horizontal direction.

➢ The flow of an unbounded fluid over a surface is classified as being _____

a) External flow ✓ M(008)
b) Internal flow
c) Uniform flow
d) Natural flow

- The flow of an unbounded fluid over a surface such as a plate, a wire, or a pipe is external flow.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ Which of the following is the total derivative operator ?

a) d (d/dt) M(041)
b) D ✓
c) Δ
d) Δ

- The total derivative operator d/dt is called the material derivative; some authors also assign to it a special notation, D/Dt.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ In what type of flow, the mass, volume and energy content of the flow do not change ?

a) Steady flow M(012)
b) Unsteady flow
c) Uniform flow
d) Non-uniform flow

within a device, but at any fixed point they remain constant. Therefore, the volume, the mass, and the total energy content of a steady-flow device or flow section remain constant in steady operation.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ The substance in liquid or gas phase is referred as _____

a) Fluid M(001)
b) Plasma
c) Electrolyte
d) Matter

- A substance in the liquid or gas phase is referred to as a fluid.

➢ ____ is the measure of internal resistance of the fluid.

a) Viscosity ✓ M(024)
b) Vapors
c) Stress
d) Momentum

▪ It appears that there is a property that represents the internal resistance of a fluid to motion or the "fluidity," and that property is the viscosity.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ Stress is defined as _____

a) Force per unit area ✓ M(001)
b) Work done per unit area
c) Fluid flow per unit area
d) momentum per unit area

▪ Stress is defined as force per unit area and is determined by dividing the force by the area upon which it acts.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ which of the following is an extensive property ?

a) **Total mass** ✓ M(019)
b) Density
c) Temperature
d) Pressure

- Extensive properties are those whose values depend on the size—or extent—of the system.
- Intensive properties are those that are independent of the mass of a system, such as temperature, pressure, and density.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ Flow having significant frictional effects is termed as ____

a) Viscous flow ✓ M(007)
b) External flow
c) Internal flow
d) Inviscid flow

- Flows in which the frictional effects are significant are called viscous flows.

Original

➢ If there is no change with location over a specified region then the flow is termed as ____

a) Steady flow M(011)
b) Unsteady flow
c) Uniform flow ✓
d) Non-uniform flow

- Steady implies no change at a point with time.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ One, Two and Three dimensional flows are characterized by ____

a) Velocity distribution ✓ M(013)
b) Mass distribution
c) Momentum distribution
d) Energy distribution

- A flow field is best characterized by the velocity distribution, and thus a flow is said to be one-, two-, or three-dimensional if the flow velocity varies in one, two, or three primary dimensions, respectively.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ The pressure exerted by the vapor of a pure substance in phase equilibrium with its liquid at given temperature is called ____

a) Vapor pressure M(023)
b) Partial pressure
c) Saturation pressure
d) None of these

- The vapor pressure P_v of a pure substance is defined as the pressure exerted by its vapor in phase equilibrium with its liquid at a given temperature.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ If at any point the fluid properties change with respect to time then the flow is referred as ____

a) Unsteady flow M(011)
b) Steady flow
c) Uniform flow
d) Non-uniform flow

- The term steady implies no change at a point with time. The opposite of steady is unsteady.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ Which one of the following is a primary dimension ____

a) Time ✓ M(017)
b) Velocity
c) Volume
d) Energy

▪ Some basic dimensions such as mass m, length L, time t, and temperature T are selected as primary or fundamental dimensions, while others such as velocity V, energy E, and volume V are expressed in terms of the primary dimensions and are called secondary dimensions, or

MTH642 Midterm Quiz Collection (Part 1/5)

➢ Which one of the following is NOT a secondary dimension ?

a) Temperature ✓ M(017)
b) Acceleration
c) Momentum
d) Velocity

▪ Some basic dimensions such as mass m, length L, time t, and temperature T are selected as primary or fundamental dimensions, while others such as velocity V, energy E, and volume V are expressed in terms of the primary dimensions and are called secondary dimensions, or derived dimensions.

➢ If a normal force of one newton is exerted by the fluid per unit area, then pressure will be ____

a) 1 Pa ✓ M(030)
b) 1 bar
c) 1 atm
d) 1 kgf/cm

- Since pressure is defined as force per unit area, it has the unit of newton per square meter (N/m^2), which is called a Pascal (Pa).
- That is; 1 Pa = 1 N/m^2.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ The quantity of matter or the region in space chosen for study is defined as ____

a) System ✓ M(015)
b) Surrounding
c) Imaginary surface
d) Boundary

- A system is defined as a quantity of matter or a region in space chosen for study.

➢ The advective acceleration is given by ____

a) $(V.\nabla)V$ ✓ M(053)
b) $\nabla . V$
c) $V \times \nabla$
d) None of these

identically zero for this steady flow field, the adective acceleration $(\vec{V} \cdot \vec{\Delta})\vec{V}$ is not zero. We first calculate the average x-component of velocity at

MTH642 Midterm Quiz Collection (Part 1/5)

➢ Fully developed velocity profile represents_____

a) One dimensional flow ✓ M(014)
b) Two dimensional flow
c) Three dimensional flow
d) Dimensional less flow

- The fully developed flow in a circular pipe is one-dimensional

➢ In which of the following system, the amount of mass is fixed and non mass and even energy can cross its boundary ?

a) Isolated system M(016)
b) Open system
c) Closed system ✓

- A closed system (also known as a control mass) consists of a fixed amount of mass.
- If, as a special case, even energy is not allowed to cross the boundary, that system is called an isolated system.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ The Greek mathematician Archimedes applied _ to determine gold content of the crown of King Hiero

a) The buoyancy principle ✓ M(004)
b) The law of conservation of momentum
c) The gravity principle
d) The law of conservation of mas

- Greek mathematician Archimedes (285–212 BC). He formulated and applied the buoyancy principle in history's first nondestructive test to determine the gold content of the crown of King Hiero I.

➢ which property allows us to assume that the properties vary continually in space with no jump discontinuities.

a) Continuum ✓ M(020)
b) Pressure
c) Volume d) Density

▪ The continuum idealization allows us to treat properties as point functions and to assume that the properties vary continually in space with no jump discontinuities.

➢ Manometer is a device used to measure the ___

a) Pressure differences ✓ M(035)
b) Volume differences
c) Velocity differences
d) Energy differences

this principle is called a manometer, and it is commonly used to measure small and moderate pressure differences. A manometer mainly consists

MTH642 Midterm Quiz Collection (Part 1/5)

➢ An open system can be referred as ____

a) Control volume ✓ M(015)
b) International system
c) Isolated system
d) Control mass

▪ An open system, or a control volume, as it is often called, is a properly selected region in space.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ The friction between the fluid layers causes the fluid velocity to ____

a) Decreases ✓
b) Increases
c) No effect
d) Non of these

➢ System is the contact surface shared by both boundary and surrounding.

a) False

b) True

M(015)

- A system is defined as a quantity of matter or a region in space chosen for study.

- Note that the boundary is the contact surface shared by both the system and the surroundings.

➢ By definition, the acceleration of the fluid particle is the time derivative of ____

a) The fluid velocity

b) The fluid pressure

c) The fluid displacement

d) The fluid momentum

M(040)

- The acceleration of the fluid particle is the time derivative of the particle's velocity: $\vec{a} = \frac{d\vec{v}}{dt}$

MTH642 Midterm Quiz Collection (Part 1/5)

➢ Which of the following is NOT an internal flow ?

a) **Unbounded flow over the surface of a wire** M(008)
b) Water flow in a pipe
c) Liquid flow between two parallel plates
d) Hot gas flow in a duct

▪ The flow of an unbounded fluid over a surface such as a plate, a wire, or a pipe is external flow.

MTH642 Midterm Quiz Collection (Part 1/5)

➢ Closed system can be referred as ____

a) **Control mass** M(015)
b) International system
c) Isolated system
d) Control volume

▪ A closed system (also known as a control mass) consists of a fixed amount of mass. (Fig – 07)