



ANSWER KEY

**QUIZ NO: 843** 

**TOPIC: FLUID MECHANICS** 

**DATE: 11/07/2024** 

#### 1. Which one of the following statements is correct?

- [A] Hydraulic grade line and energy grade line are the same in fluid problems
- [B] Energy grade line lies above the hydraulic grade line and is always parallel to it
- [C] Energy grade line lies above the hydraulic grade line and they are separated from each other by a vertical distance equal to the velocity head
- [D] The hydraulic grade line slopes upwards meeting the energy grade at the exit of flow

**Answer: C** 

- 2. Point A of head 'H<sub>A</sub>' is at a higher elevation than point B of head 'H<sub>B</sub>'. The head loss between these points is H<sub>L</sub>. The flow will take place?
- [A] Always form A to B
- [B] From A to B if  $H_A + H_L = H_B$
- [C] From B to A if  $H_A + H_L = H_B$
- [D] From B to A if  $H_B + H_L = H_A$

Answer: C





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3.	If H is the total head at inlet and $h_{\mbox{\scriptsize 1}}$ is the head lost due to friction, efficiency
	of power transmission, through a straight pipe is given by:

[A] 
$$(H - h_1)/H$$

[B] 
$$H/(H+h_1)$$

[C] 
$$(H - h_1)/(H + h_1)$$

[D] 
$$H/(H - h_1)$$

**Answer: A** 

### 4. Water hammer in pipe lines takes place when:

- [A] Fluid is flowing with high velocity
- [B] Fluid is flowing with high pressure
- [C] Flowing fluid is suddenly brought to rest by closing a valve
- [D] Flowing fluid is brought to rest by gradually closing a valve

**Answer: C** 

- 5. In a pipe flow, the head lost due to friction is 6 m. If the power transmitted through the pipe has to be the maximum, then the total head at the inlet of the pipe will have to be maintained at:
  - [A] 36 m
  - [B] 30 m
  - [C] 24 m
  - [D] 18 m

Answer: D

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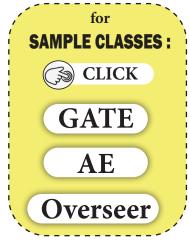


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- 6. In flow through a pipe, the transition from laminar to turbulent flow does not depend on?
  - [A] Velocity of the fluid
  - [B] Density of the fluid
  - [C] Diameter of the pipe
  - [D] Length of the pipe

**Answer: D** 

- 7. The linear momentum equation is based on:
  - [A] Newton's law of viscocity
  - [B] Newton's first law
  - [C] Newton's second law
  - [D] Newton's third law

**Answer: C** 

- 8. If R is the resultant reaction force on a fluid from the boundary the force on the boundary due to fluid flow is equal to:
  - [A] R But opposite direction
  - [B] R and of some direction
  - [C] Equal to x component of R
  - [D] None of the above

Answer: A





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### 9. In network of pipes

- [A] The algebraic sum of discharges around each circuit is 0
- [B] The algebraic sum of discharges around each circuit should not be 0
- [C] The elevation of hydraulic grade line is assumed for each junction point
- [D] Elementary circuits are replaced by equivalent pipes

**Answer: A** 

### 10. Pick up the incorrect statement about buoyant force

- [A] It always at vertically upwards
- [B] It is equal to weight of the fluid displaced by solid body
- [C] It acts through centre of gravity of displaced volume
- [D] None of the above

**Answer: D** 

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