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_A' is at a higher elevation than point B of head 'H_B'. The head loss between these points is H_L. 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

3. **If H is the total head at inlet and h_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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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

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