RADIANT 2026

Physics

Upthrust in Fluid, Archimedes' Principle and Flotation

Lecture – 04

By – Akash Shravan Sir

Topics *to be covered*

1. Determination of Relative Density of a Solid Substance by Archimedes' Principle
2. Determination of Relative Density of a Liquid by Archimedes' Principle
3. Application of the Principle of Floatation
4. Numericals
5) Hydraulic Machines

Recap *of previous lecture*

1. Experimental Verification of Archimedes' Principle
2. Relative Density
3. Determination of Relative Density of a Solid Substance by Archimedes' Principle


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Question

For a floating body, its weight W and upthrust F_B on it are related as:

A $W > F_B$

B $W < F_B$

C $W = F_B$

D nothing can be said

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A $W > F_B$

B $W < F_B$

C $W = F_B$

D nothing can be said

Ans. **(C)** $W = F_B$

Question

A body of weight W is floating in a liquid. Its apparent weight will be:

A equal to W

B less than W

C greater than W

D zero

Question

A body of weight W is floating in a liquid. Its apparent weight will be:

A equal to W

B less than W

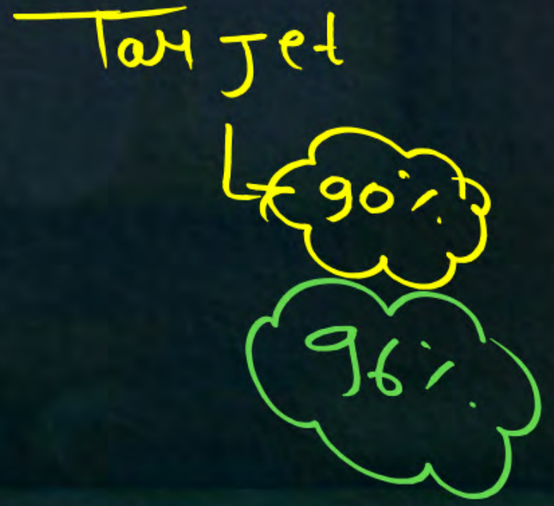
C greater than W

D zero

Ans. **(D)** zero

Question

The property of a liquid to exert an upward force on a body immersed in it is called:



A buoyancy

B pressure

C friction

D viscosity

Question

The property of a liquid to exert an upward force on a body immersed in it is called:

A buoyancy

B pressure

C friction

D viscosity

Ans. **(A)** buoyancy

Question

If an empty can is pushed into water, we feel:

A a downward force

B an upward force

C it is easy to push the can into water

D both (A) and (C)

Question

If an empty can is pushed into water, we feel:

A a downward force

B an upward force

C it is easy to push the can into water

D both (A) and (C)

Ans. **(B)** an upward force

Question

The S.I. unit of upthrust is:

Target → 90+%.

A Pa

B N

C kg

D $kg\ m^2$

Question

The S.I. unit of upthrust is:

(A) Pa

(B) N

(C) kg

(D) $kg\ m^2$

Ans. **(B)** N

Question

Archimedes' principle applies on:

[fluid]

A solids and liquids

B liquids and gases

C solids and gases

D solids, liquids and gases

Question

Archimedes' principle applies on:

A solids and liquids

B liquids and gases

C solids and gases

D solids, liquids and gases

Ans. **(B)** liquids and gases

Question

The apparent loss in weight is equal to the upthrust on the body verifies

A Pascal's law

B Newton's third law

C Archimedes' principle

D Newton's second law

Target → 95%

Question

The apparent loss in weight is equal to the upthrust on the body verifies

A Pascal's law

B Newton's third law

C Archimedes' principle

D Newton's second law

Ans. **(C)** Archimedes' principle

Question

Relative density of a substance is expressed by comparing the density of that substance with the density of:

A air

B mercury

C water

D iron

Target → 95%


Thank You