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Courses » Principle of Hydraulic Machines and System Design

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Unit 3 - Week 1 - Principle of Operation of Hydraulic Machines

Course outline

How to access the portal

Introductory Session

Week 1 - Principle of Operation of Hydraulic Machines

● Introduction to Hydraulic Machines: Classifications and Operational Principles

● Euler Equation for Turbomachines: Net Head Developed by the Pumps/Turbines

○ Quiz : Assignment 01

○ Solutions of Assignment 01

Week 2 - Radial and Axial Flow Pumps

Week 3 - Radial Flow Pumps

Assignment 01

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2018-08-22, 23:59 IST.**

Try to answer all questions. From here onward, your performance in weekly assignment will be accounted in the evaluation of final grades.

1) If for a turbomachine, at inlet: $u_1 = 5$ m/sec and $c_{\theta 1} = 2$ m/sec while at outlet: $u_2 = 7$ m/sec and $c_{\theta 2} = 3$ m/sec, then find whether it is a pump or a turbine. **1 point**

- Turbine
- Pump
- Both pump and turbine
- Can't say anything

No, the answer is incorrect.

Score: 0

Accepted Answers:

Pump

2) If the component of relative velocity in the tangential direction is 5 m/sec and the component of absolute velocity in the tangential direction is 2 m/sec, then the value of blade velocity is _____ m/sec. **1 point**

- 6
- 8
- 7
- Insufficient data

No, the answer is incorrect.

Score: 0

Accepted Answers:

7

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Week 5 - Pump Characteristics and System Design

Week 6 - Positive Displacement Pump

Week 7 - Hydraulic Turbine: Impulse Turbine

Week 8 - Hydraulic Turbine: Reaction Turbine

$V_2 V_{w2} - V_1 V_{w1}$

$U_2 V_2 - U_1 V_1$

$U_2 V_{r2} - U_1 V_{r1}$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$U_2 V_{w2} - U_1 V_{w1}$

4) The Euler's equation for turbomachine is derived on the basis of

1 point

- Rate of change of linear momentum and is valid for pump only
- Rate of change of linear momentum and is valid for both pump and turbine
- Rate of change of angular momentum and is valid for pump only
- Rate of change of angular momentum and is valid for pump and turbine

No, the answer is incorrect.

Score: 0

Accepted Answers:

Rate of change of angular momentum and is valid for pump and turbine

5) For a radial flow pump ratio of actual head developed by the pump to the ideal head is known as

1 point

- Mechanical efficiency
- Hydraulic efficiency
- Overall efficiency
- None

No, the answer is incorrect.

Score: 0

Accepted Answers:

Hydraulic efficiency

6) For a radial flow pump when the swirl at the inlet becomes negative, the head will

1 point

- Increases
- Decreases
- Remains same
- None

No, the answer is incorrect.

Score: 0

Accepted Answers:

Increases

7) For high discharge at low head which one of the following pump is preferred?

1 point

- Axial flow pump
- Radial flow pump
- Mixed flow pump
- None

No, the answer is incorrect.

Score: 0

Accepted Answers:

Axial flow pump

8) Based on the direction of fluid path in the rotating element, fluid machines are classified into **1 point**

- Axial flow machines and turbo machines
- Positive displacement machines and turbo machines
- Axial flow machines, radial flow machines and mixed flow machines
- None

No, the answer is incorrect.

Score: 0

Accepted Answers:

Axial flow machines, radial flow machines and mixed flow machines

9) Pump is a kind of turbo machine, which **1 point**

- Absorbs power
- Produces power
- Both a and b
- None

No, the answer is incorrect.

Score: 0

Accepted Answers:

Absorbs power

10) Based on principle of operation, fluid machines are classified into positive displacement machines and turbo machines. **1 point**

- True
- False

No, the answer is incorrect.

Score: 0

Accepted Answers:

True

You were allowed to submit this assignment only once.

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