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Courses » Principle of Hydraulic Machines and System Design

Announcements **Course** Ask a Question Progress Mentor FAQ

Unit 8 - Week 6 - Positive Displacement Pump

Course outline

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Introductory Session

Week 1 - Principle of Operation of Hydraulic Machines

Week 2 - Radial and Axial Flow Pumps

Week 3 - Radial Flow Pump Operational Issues

Week 4 - Pump Design: Degrees of Reaction

Week 5 - Pump Characteristics and System Design

Week 6 - Positive Displacement Pump

Positive displacement pump indicator

Assignment 06

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2018-09-19, 23:59 IST.**

1) Reciprocating pumps are suitable for _____ pressures and _____ volumes. **1 point**

- low, high
 high, high
 high, low
 low, low

No, the answer is incorrect.

Score: 0

Accepted Answers:

high, low

2) Which of the followings are positive displacement pump (pumps) **1 point**

- Screw pump
 Rotary vane pump
 Gear pump
 All of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

All of the above

3) Overall efficiency is the product of mechanical efficiency, hydraulic efficiency and volumetric efficiency. This statement is **1 point**

- True

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H-Q curve of positive displacement pump, problems

Quiz : Assignment 06

Solutions of Assignment 06

Week 7 - Hydraulic Turbine: Impulse Turbine

Week 8 - Hydraulic Turbine: Reaction Turbine

operates at 40 rpm. If the slip is 5%, determine the value of coefficient of discharge.

- 0.95
- 0.83
- 0.90
- 0.88

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.95

5) The theoretical flow rate of a reciprocating pump is given by Q_{th} . The actual flow rate of the same pump is given by Q_{act} . The correct expression for the volumetric efficiency of the pump is **1 point**

- $\frac{Q_{th} - Q_{act}}{Q_{th}}$
- $\frac{Q_{act} - Q_{th}}{Q_{th}}$
- $\frac{Q_{act}}{Q_{th}}$
- $\frac{Q_{th}}{Q_{act}}$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$\frac{Q_{act}}{Q_{th}}$

6) From a single acting reciprocating pump it is desired to have a discharge of water 8 litre/min. The pump is running at 50 rpm. The bore to stroke ratio of the pump is 1:1.8 and the slip is 10%. Determine the stroke of the pump. **1 point**

- 55.55 mm
- 80.88 mm
- 90.18 mm
- 70.25 mm

No, the answer is incorrect.

Score: 0

Accepted Answers:

90.18 mm

7) The volumetric efficiency of a positive displacement pump is 88%. The slip of the pump is **1 point**

- 20%
- 12%
- 10%
- 5%

No, the answer is incorrect.

Score: 0

Accepted Answers:

12%

8) A single acting reciprocating pump has a stroke of 200 mm and bore of 150 mm. The pump **1 point** operates at 60 rpm. The overall efficiency of the pump is 90%. If the suction and delivery heads are 4 m and 20 m respectively determine the actual power requirement. Consider slip = 8% and acceleration due to gravity = 9.81 m/sec^2 .

- 0.85 kW
- 0.80 kW
- 0.90 kW
- 0.70 kW

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.85 kW

9) For a reciprocating pump, slip

1 point

- is always positive.
- is always negative.
- can be positive or negative.

No, the answer is incorrect.

Score: 0

Accepted Answers:

can be positive or negative.

10) A double acting reciprocating pump running at 55 rpm has a stroke of 250 mm and a piston **1 point** diameter of 100 mm. The delivery and suction head are 30 m and 5 m respectively. If the pump has an efficiency of 90%, determine the power required to run the pump.

- 1.10 kW
- 1.37 kW
- 1.67 kW
- 1.78 kW

No, the answer is incorrect.

Score: 0

Accepted Answers:

1.37 kW

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