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.  
   - 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)  
   - 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  
   - True
   - False

   **Score:** 0
operates at 40 rpm. If the slip is 5%, determine the value of coefficient of discharge.

\[ Q_{act} = Q_{th} (1 - \text{slip}) \]

- 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

\[ \eta = \frac{Q_{act}}{Q_{th}} \]

- \(Q_{act} - Q_{th} \)
- \(Q_{act} - Q_{th} \)
- \(Q_{act} \)
- \(Q_{th} \)
- \(Q_{th} \)

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.

- 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

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

No, the answer is incorrect.
Score: 0
Accepted Answers:
8) A single acting reciprocating pump has a stroke of 200 mm and bore of 150 mm. The pump 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/sec².

- 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
- 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 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