

Unit 8 - Week 6:

Course outline

How to access the Portal?

Week 0 : Assignment 0

Week 1:

Week 2:

Week 3:

Week 4:

Week 5:

Week 6:

● Lecture 26: Axial Flow Pump

● Lecture 27: Reciprocating Pump Part - I

● Lecture 28: Reciprocating Pump Part - II

● Lecture 29: Tutorial - VIII

● Lecture 30: Basic Principles and Energy Transfer in Centrifugal Compressor Part - I

○ Quiz : Assignment 6

○ Feedback for week 6

Week 7:

Week 8:

Details Solution

Assignment 6

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-10-09, 23:59 IST.

1) Two pumps can operate independently at head H_1 and discharge Q_1 . If the pumps are connected in parallel, then what are the resulting discharge (Q) and head (H)?

1 point

(a) $H = H_1; Q = Q_1$

(b) $H = H_1; Q = 2Q_1$

(c) $H = 2H_1; Q = Q_1$

(d) $H = 2H_1; Q = 2Q_1$

- a
 b
 c
 d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

2) It is required to take water from a deep well under a total head of 89 m. All the available pumps are identical and are running at 800 rpm. The dimensional specific speed of each pump is given as 25 while rated capacity of each pump is $0.16 \text{ m}^3 / \text{s}$. The most suitable design choice regarding the selection and connection of the pumps is:

1 point

(a) Employing 2 pumps in parallel

(b) 1 pump alone is sufficient

(c) Employing 3 pumps in series

(d) Employing 3 pumps in parallel

- a
 b
 c
 d

No, the answer is incorrect.
Score: 0

Accepted Answers:
c

3) Consider the following statements pertaining to axial flow pump:

1 point

1. The outlet guide vanes are provided to eliminate the whirling component of velocity at discharge.

2. In an axial flow pump a fluid particle enters and leaves the impeller at different radial locations.

Of these statements:

(a) 1 is correct but 2 is wrong

(b) 1 and 2 both are correct

(c) 1 is wrong but 2 is correct

(d) 1 and 2 both are wrong

- a
 b
 c
 d

No, the answer is incorrect.
Score: 0

Accepted Answers:
a

4) In a reciprocating pump without air vessels, the acceleration head and friction head in the suction/delivery pipe are maximum when the crank angles are

1 point

(a) 90° and 180° , respectively

(b) 0° and 90° , respectively

(c) 0° and 180° , respectively

(d) 90° and 0° , respectively

- a
 b
 c
 d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

5) Choose the most suitable conditions where reciprocating pumps are used

1 point

(a) Low flow rates and high pressure

(b) High flow rates and low pressure

(c) High flow rates and high pressure

(d) Low flow rates and low pressure

- a
 b
 c
 d

No, the answer is incorrect.
Score: 0

Accepted Answers:
a

6) The speed of a reciprocating pump is restricted by which of the following points

1 point

(a) Beginning of the delivery stroke

(b) Beginning of the suction stroke

(c) End of the delivery stroke

(d) End of the suction stroke

- a
 b
 c
 d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

7) Which of following are the beneficial effects of air vessel fitted to delivery side of a reciprocating pump?

1 point

(i) Constant rate of discharge can be ensured

(ii) Power consumption can be reduced

(iii) Discharge can be increased

(iv) Constant velocity of the piston can be ensured

Select the correct answer using the codes given below:

Codes:

(a) (i) and (iv)

(b) (i) and (ii)

(c) (ii) and (iv)

(d) (i) and (iii)

- a
 b
 c
 d

No, the answer is incorrect.
Score: 0

Accepted Answers:
b

8) A single acting reciprocating water pump delivers 200 litres of water per second against a suction head of 4 m and a delivery head of 16 m. The power required to drive the pump is approximately ($g = 10 \text{ m} / \text{s}^2$)

1 point

(a) 10 kW

(b) 20 kW

(c) 40 kW

(d) 80 kW

- a
 b
 c
 d

No, the answer is incorrect.
Score: 0

Accepted Answers:
c

9) A single acting reciprocating pump has a bore of 25 cm and stroke of 40 cm runs at 30 rpm. It discharges water at the rate of $0.009 \text{ m}^3 / \text{s}$. The suction and delivery heads are 7 m and 15 m respectively. The percentage slip will be

1 point

(a) 50%

(b) 16.32%

(c) 32.64%

(d) 8.16%

- a
 b
 c
 d

No, the answer is incorrect.
Score: 0

Accepted Answers:
d

10) The reciprocating pump is a

1 point

(a) centrifugal pump

(b) axial pump

(c) gear pump

(d) positive displacement pump

- a
 b
 c
 d

No, the answer is incorrect.
Score: 0

Accepted Answers:
d