

Unit 4 - Week 3

Course outline

How to access the portal

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Week 2

Week 3

 Fluidisation-1

 Fluidisation-2

 Liquid Fluidisation

 Gas Fluidisation-1

 Gas Fluidisation-2

 Quiz : Assignment 3

 Assignment-3 solution

Week 4

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WEEKLY FEEDBACK

Assignment 3

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

Due on 2019-08-21, 23:59 IST.

1) In fluidised bed

1 point

- Bed height increases along with pressure drop
- Bed height increases at constant pressure drop
- Pressure drop increases at constant bed height
- Pressure drop and bed height do not change

No, the answer is incorrect.
Score: 0

Accepted Answers:

Bed height increases at constant pressure drop

2) At minimum fluidization condition

1 point

- Particle starts moving freely in the bed
- Particle starts leaving its place in the bed
- Both of the above
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:

Particle starts leaving its place in the bed

3) With increase in Galileo number is

1 point

- Ratio of terminal settling velocity and minimum fluidisation velocity increases
- Ratio of terminal settling velocity and minimum fluidisation velocity decreases
- Ratio of terminal settling velocity and minimum fluidisation velocity remains constant
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:

Ratio of terminal settling velocity and minimum fluidisation velocity decreases

4) More irregular particles

2 points

- Increase bed voidage
- Decrease bed voidage
- Both are possible
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:

Decrease bed voidage

5) Uniform expansion of bed is not achieved in

1 point

- Low gas velocity
- Low liquid velocity
- High gas velocity
- High liquid velocity

No, the answer is incorrect.
Score: 0

Accepted Answers:

High gas velocity

6) For given terminal settling velocity, operating fluid velocity

1 point

- Increases with increase in bed voidage
- Decreases with increase in bed voidage
- Both are possible
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:

Increases with increase in bed voidage

7) Value of 'n' is higher for

1 point

- Small particle size
- Large particle size
- Irregular particle
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:

Large particle size

8) Calculate the minimum velocity at which spherical particles of density 1500 kg/m^3 and diameter 1.2 mm will be fluidised by water in a tube of diameter 8 mm on the assumption that the Carman-Kozeny is applicable. Voidage is 0.45 and correction factor to account effect of wall is 1.1. **5 points**

- 0.005 m/s
- 0.007 m/s
- 0.009 m/s
- 0.015 m/s

No, the answer is incorrect.
Score: 0

Accepted Answers:

0.007 m/s

9) For Q.No. 8 find minimum fluidisation velocity considering Ergun equation. **5 points**

- 0.0054 m/s
- 0.0074 m/s
- 0.0094 m/s
- 0.0154 m/s

No, the answer is incorrect.
Score: 0

Accepted Answers:

0.0074 m/s

10) Derive the relationship for the ratio of the terminal falling velocity of a particle to the minimum fluidising velocity for a bed of similar particles assuming Stokes' Law and the Carman-Kozeny equations are applicable. What is the value of the ratio if the bed voidage at the minimum fluidising velocity is 0.35? **5 points**

- 153.12
- 180.34
- 165.61
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:

153.12

11) Which of the following statement is correct **1 point**

- Particulate fluidisation and aggregative fluidisation proceed simultaneously
- Particulate fluidisation is followed by aggregative fluidisation
- Aggregative fluidisation is followed by particulate fluidisation
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:

Particulate fluidisation is followed by aggregative fluidisation

12) Which is most difficult to fluidise **2 points**

- Spherical shaped particles
- Cylindrical shaped particles
- Needle shaped particles
- Fluidisation does not depend on shape of particles

No, the answer is incorrect.
Score: 0

Accepted Answers:

Needle shaped particles

13) Maximum bubble size can be achieved in **1 point**

- Group C powder
- Group B powder
- Group A powder
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:

Group A powder

14) Which material is most suitable for fluidisation? **2 points**

- Rice
- Cement
- Sand
- Catalyst

No, the answer is incorrect.
Score: 0

Accepted Answers:

Catalyst

15) Slugging is undesirable due to **1 point**

- Formation of large size bubble
- Due to vibration in industry
- Material does not mix properly
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:

Due to vibration in industry