Unit 6 - Week 4: Storage and Conveying of Bulk Solids

Assessment 4

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

1. For collection und particle, what is the ratio between normal pressure to applied pressure?  
   
   - $X = 0.5$  
   - $X = 0.1$  
   - $X = 1$  
   - None of the above  
   
   No, the answer is incorrect.  
   
   Accepted Answer:  
   
   $X = 0.5$  

2. For free flowing granular solids, what is the general range of angle of repose?  
   
   - $20^\circ$  
   - $10^\circ$  
   - $30^\circ$  
   - $40^\circ$  
   - None of the above  
   
   No, the answer is incorrect.  
   
   Accepted Answer:  
   
   $30^\circ$  

3. What are the common type of flow pattern possible in solids of symmetrical geometry?  
   
   - Massive flow pattern  
   - Parallel flow pattern  
   - Expanded flow pattern  
   - None of the above  
   
   No, the answer is incorrect.  
   
   Accepted Answer:  
   
   All above are possible  

4. For what type of back solids, forward flow times are most suitable?  
   
   - Granular  
   - Ceramic  
   - Fine broken or slightly cohesive  
   - Non-degrading solids once segregation is not important  
   - None of the above  
   
   No, the answer is incorrect.  
   
   Accepted Answer:  
   
   All above three criteria, (ii), (iii), and (iv) are correct  

5. Consider free flowing solids moving out through a pipe of circular diameter. Then the rate of solid flow out of pipe proportional to  
   
   - $g^2$  
   - $g$  
   - $g^3$  
   - None of the above  
   
   No, the answer is incorrect.  
   
   Accepted Answer:  
   
   All above flows are proportional to flow of cohesive solids  

6. For improving flow of cohesive solids, which of the following accessories can be useful?  
   
   - Vibrations on the bin walls  
   - Internal mixer near the bin floor  
   - Jets of air at the discharge opening  
   - None of the above  
   
   No, the answer is incorrect.  
   
   Accepted Answer:  
   
   All above are suitable to improve flow of cohesive solids  

7. What is the power requirement in HP to move a load of 500 t of granular material on a conveyor belt of 1 m wide at 10 m/h?  
   
   The power of conveyor motor is 180 kW and its running parts weight 800 kg, approximately. Gear 1 is 1:2.5, the efficiency of motor is 0.86, and HP of motor is 0.8 respectively.  
   
   - 3.75 kW  
   - 2.5 kW  
   - 4.75 kW  
   - None of the above  
   
   No, the answer is incorrect.  
   
   Accepted Answer:  
   
   $2.5$ kW  

8. The transportation duty given in question no. 8. If spaced bucket elevators are used then what is the power requirement in HP?  
   
   - 3.75 kW  
   - 2.5 kW  
   - 4.75 kW  
   - None of the above  
   
   No, the answer is incorrect.  
   
   Accepted Answer:  
   
   $2.5$ kW  

9. For the transportation duty given in question no. 8. if continuous bucket elevators are used then what is the power requirement in HP?  
   
   - 3.75 kW  
   - 2.5 kW  
   - 4.75 kW  
   - None of the above  
   
   No, the answer is incorrect.  
   
   Accepted Answer:  
   
   $4.75$ kW