

# Unit 3 - Week 2

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## Assignment 2

The due date for submitting this assignment has passed. **Due on 2019-08-21, 23:59 IST.**  
 As per our records you have not submitted this assignment.

1) For toxic sludge which type of filter media is used **1 point**

- Satin weaves
- Metal wire mesh
- Cotton weaves
- Sand bed

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*Sand bed*

2) What is 'v' in ultimate filtration equation? **1 point**

- Volume of cake formed when total volume of filtrate is collected
- Volume of cake formed when 10 litre of filtrate is collected
- Volume of cake formed when 1 m<sup>3</sup> of filtrate is collected
- None of the above

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*Volume of cake formed when 1 m<sup>3</sup> of filtrate is collected*

3) At optimum cycle time, the time for filtration is **1 point**

- Equal to difference of time of washing and time for which the filter is out of use
- Equal to difference of time for which the filter is out of use and time of washing
- Equal to time for which the filter is out of use
- None of the above

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*Equal to difference of time for which the filter is out of use and time of washing*

4) For constant rate and compressible sludge **1 point**

- s, a<sub>0</sub> and R<sub>m</sub> should be computed
- s, a<sub>0</sub>, v and R<sub>m</sub> should be computed
- a and R<sub>m</sub> should be computed
- v, a<sub>0</sub> and R<sub>m</sub> should be computed

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*s, a<sub>0</sub> and R<sub>m</sub> should be computed*

5) A plate and frame filter having 1.2 m<sup>2</sup> surface area is operated at 2 bar (gauge) and forms incompressible cake. Feed consists of 8% solid (specific gravity = 2.3). Viscosity of liquid as 0.003 kg/m s. Compute the washing time required to wash the cake formed at the end of 100 minutes of filtering at the same pressure using 4m<sup>3</sup> of wash water. The operating data are

Time (min)	13	25	40	60	75	90
Filtrate volume (m <sup>3</sup> )	4.5	7.2	9.8	12.4	14.1	15.6

- 57.45 min
- 78.12 min
- 44.74 min
- 65.24 min

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*44.74 min*

6) For Q.No. 5 find the filter media resistance constant **3 points**

- 33.19 x 10<sup>8</sup> m<sup>-1</sup>
- 13.08 x 10<sup>8</sup> m<sup>-1</sup>
- 24.12 x 10<sup>8</sup> m<sup>-1</sup>
- 48.76 x 10<sup>8</sup> m<sup>-1</sup>

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*33.19 x 10<sup>8</sup> m<sup>-1</sup>*

7) In the filtration, the initial period is carried out at a constant rate with the feed pump at full capacity, and then at constant pressure difference of 500 kN/m<sup>2</sup>. The pressure is then maintained at this value for a rest of the filtration. The constant rate operation requires 850 s and one-third of the total filtrate is obtained during this period. Neglecting the resistance of the filter medium. Compute the filtration cycle with the existing pump for a maximum daily capacity, if the time for removing the cake and reassembling the press is 1100 s. The cake is not washed. **5 points**

- 3050 s
- 4250 s
- 5350 s
- 2030 s

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*3050 s*

8) During continuous filtration if 25% area of the drum is in contact with slurry, then value of 'f' should be **2 points**

- 0.25
- 25
- 0.75
- 75

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*0.25*

9) In continuous filtration **1 point**

- Constant pressure is followed by constant rate
- Constant rate is followed by constant pressure
- Constant rate occur with constant pressure
- None of the above

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*Constant rate occur with constant pressure*

10) A rotary filter, operating at 0.04 Hz, filters at the rate of 0.0065 m<sup>3</sup>/s. Operating under the same vacuum and neglecting the resistance of the filter cloth, at what speed must the filter be operated to give a filtration rate of 0.02 m<sup>3</sup>/s? **2 points**

- 0.126 Hz
- 0.651 Hz
- 0.546 Hz
- 0.379 Hz

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*0.379 Hz*

11) Which statement amongst the following is not correct for vacuum filtration? **1 point**

- Clean filtrate is found due to vacuum
- Sample collection is difficult
- Dissembling is difficult in vacuum filtration
- Less dry cake is obtained

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*Sample collection is difficult*

12) How cake is removed in leaf filters? **1 point**

- By dissembling the system
- Using vibration
- Using back pressure
- None of the above

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*Using vibration*

13) Knife is used in **1 point**

- Press and frame filters
- Leaf filters
- Disc filters
- None of the above

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*Disc filters*

14) Thin cake is formed in **1 point**

- Drum filters
- Plate and frame filters
- Leaf filters
- None of the above

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*Drum filters*

15) In filtration α (alpha) accounts the **1 point**

- Resistance of total cake
- Resistance of initial layer of cake
- Both of the above
- None of the above

No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
*Resistance of total cake*