QUIZ II   (1 mark each)

1. Stoke's law pertains to

(i) Filtration (ii) particle settling (iii) flocculation (iv) cross flow

2. Which is not a surface filter

(i) Belt filter (ii) Rotary vacuum-drum filter (iii) Screen filter (iv) sand filter

3. When the particle size is reduced by half then terminal settling velocity

(i) increase by 2 times (ii) decreases by 2 times (iii) increases by 4 times (iv) decreases by 4 times

4. When solids are separated from liquid in a centrifuge the terminal settling velocity is

(i) Inversely proportion to rpm (ii) directly proportional to rpm (iii) does not depend on rpm (iv) all of the above

5. Flocculation is not synonymous with

(i) agglomeration (ii) coagulation (iii) air flotation (iv) filtration

6. Rate of filtration is inversely proportional to

(i) surface tension of the fluid (ii) particle size (iii) pressure (iv) filter area

7. what does filter aid does not do

(i) increases bed porosity (ii) prevents compressibility (iii) aids adsorption (iv) decreases bed thickness

8. If a graph as shown below is obtained, it indicates

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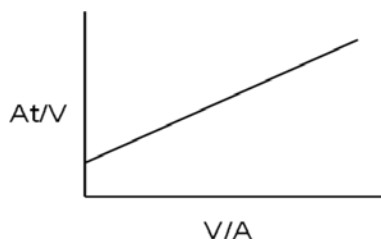
Where A=area of filtration, t= time of filtration and V=volume filtered

(i) filter medium offers resistance (ii) filter medium offers no resistance (iii) the cake is compressible (iv) the liquid is very viscous

9. It takes 60 minutes to filter a slurry of 1000 ltr using a filter of 2 m^2 area. How long will it take to filter 10 m^3 of same slurry with a filter of area 20 m^2. Assume incompressible cake, resistance offered by cloth is zero and same pressure

(i) 40 (ii) 60 (iii) 600 (iv) 80

10. If I want to use the same centrifuge to remove solids with half the diameter how much the through put will decrease by

(i) 2 (ii) 4 (iii) 8 (iv) no change

11. In a settling tank instead of water if we use a liquid which has a specific gravity of 2, what will be the change in settling time

(i) double (ii) remain same (iii) reduce by half (iv) triple

12. Reynold's number is

(i) $N_{Re} = d\ \mu\ \rho\ /\ u$ (ii) $N_{Re} = d\ u\ \rho\ /\ \mu$ (iii) $N_{Re} = d^2\ u\ \rho\ /\ \mu$ (iv) $N_{Re} = d\ u\ /\ \mu$

13. partition coefficient, is the ratio of solute concentration

(i) in solvent phase to raffinate phase (ii) in heavy phase to solvent phase (iii) raffinate phase to extract phase (iv) raffinate phase to heavy phase

14. What is the fraction extracted in an extractor if E = 5. We are adding fresh solvent

(i) 0.93 (ii) 0.83 (iii) 0.73 (iv) 0.90

15. What will be the fraction extracted in problem 14, If the amount of solvent used is reduced by half but charged in two stages

(i) 0.882 (ii) 0.955 (iii) 0.918 (iv) 0.810

16. How many counter current extraction stages (give answer in whole number) are required if we want to recover 90% of a solute. E=2

(I) 1 (ii) 2 (iii) 3 (iv) 4