

Important Questions on crop processing engineering:

Q1. The following data was collected from a cyclone separator.

Particle weight = 2g

particle velocity = 15m/s

Cyclone radius = 1m

(a) Draw a diagram showing the operation of a cyclone separator and derive the equations.

(b) Determine its;

(i) Centrifugal force (if) Separating force and

iii) Performance factor

Q2. The moisture content of a sample of wheat grains at harvest is 25% d.b.

By derivation of appropriate formulae, determine the moisture content of the sample on wet basis.

Q3. The energy expended in reducing the size of particles from a mean diameter of 3.5cm to 1cm is 40W. Determine the particle size in the next stage of reduction, if the same amount of energy is applied, assuming:

Rittinger's law Kick's Law

(Note; derive the formulae in both cases)

Q4. Sieve analysis on ground feed gave the following results:

Sieve	% on Sieve	
3/8"		*
10.2		
No. 4	20.8	
8	33.6	
14	15.3	
28	8.4	
48	5.6	

100

5.0

Pan

1.1

From this result, determine the
Fineness modules and Uniformity index

Comment on your solutions

Q5. Write the principle of size reduction.

Q6. Explain importance of material handling devices.

Q7. Explain type of separators.

Q8. Explain different type of screens.

Q9. Explain different of filters.

Q10. Explain Rittinger's Equation.

Q11. Explain Kick's law

Q12. Write about scope of food processing

Q13. Explain principle of belt conveyor

Q14. Write about bucket elevator.

Q15. Explain gravity conveyor