# Question Bank (I scheme)

**Name of Course: MECHANICAL OPERATION** **Subject code: 22313**

**Semester : Third** **Programme: Chemical**

## Unit test I

### Unit 1 : Solid particle and Size reduction (16marks)

**TWO marks question**

1. Define Rittinger's law. Give the mathematical expression and explain the terms.
2. Define work index. Give the mathematical expression and explain the terms.
3. Define critical speed of ball mill .What happens when the ball mill is centrifuging?
4. Differentiate between blake type and dodge type jaw crusher with respect to
   1. Position of movable jaw 2. Blocking of outlet by product

**FOUR marks question**

5. Draw the diagram of jaw crusher and mark the parts.
6 Explain the working of gyratory crusher.
7. Calculate the operating speed of ball mill from the following data.

   Diameter of the mill – 500mm

   Diameter of balls – 50mm

   Operating speed is 40% of critical speed
8. Give the classification of size reduction equipments. Write the principle involved?

   Give one eg of each.
9. Explain closed circuit grinding.
10. Explain the working of hammer mill.

### Unit2: Solid-solid separation (10marks)

**TWO marks question**

11. Define ideal screen and actual screen.

12. Define mesh and screen aperture

13. Draw the 2 graphs for reporting screen analysis

14. Give the function of collectors and modifiers in froth floatation

**FOUR marks question**

15. Derive overall effectiveness of screen.

16. State the factors affecting the performance of the screen.

17. Explain the working of magnetic drum separator

## Unit 3: Solid-liquid separation(09marks)

**TWO marks question**

18. Define Stoke's law.

19. Define cake filtration and deep bed filtration.

20. Define constant rate and constant pressure filtration.

21. Give the function of thickeners.

**FOUR marks question**

22. Differentiate between sedimentation and filtration.

23. Explain the factors affecting the rate of filtration

24. Explain the role of filter aids in filtration.

25. List the factors to be considered while selecting a filter medium?