

## Question Bank (G scheme)

Name of Subject: MECHANICAL OPERATION

Subject code: 17313

Semester : Third

Course: Chemical

### Unit test I

#### Chapter 1 : Size reduction of Solids(20marks)

##### Three 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. Compare 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. A certain roll crusher accepts a feed of rock having diameter 50 mm and reduce it to product having 20mm.Angle of nip is  $30^{\circ}$  .Find the diameter of rolls?
7. Find 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.

#### Chapter 2: Size Separation of Solids (16marks)

**THREE marks question**

11. Define oversize and under size in screening.
12. Define ideal screen and actual screen.
13. Define mesh and screen aperture.
14. Draw the 2 graphs for reporting screen analysis

**FOUR marks question**

15. Derive overall effectiveness of screen.
16. State the factors affecting the performance of the screen.
17. Explain the working of vibrating screen with diagram.
18. Draw the various trammel arrangements for separating particles of 50 mesh, 100 mesh and 150 mesh.

**Chapter 3: Separation of solid based on Specific properties(16marks)**

**THREE marks question**

19. State the laws of classification.
20. Give the function of collectors and modifiers in froth floatation.

**FOUR marks question**

21. State the principle of hydraulic jig and draw the diagram of a jig.
22. Explain working of cyclone separator.
23. Explain working of spiral classifier.
24. Explain the working of electrostatic separator?
25. Draw the diagram of Ball-Norton machine.