22313

12425

03 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **10**

a) Enlist the names of Equipments used in size Reduction. (Any 4)

b) Define Kick's law with formula.

c) Define effectiveness of screen. Write formula.

d) List out factors affecting on rate of sedimentation.

e) Give the principle of Basket centrifuge.

f) List out industrial importance of fabric filters.

g) Write importance of mixing in chemical industries.

Marks

2. Attempt any THREE of the following : **12**

a) Draw and explain open and closed circuit grinding.

b) Distinguish between differential and cumulathe screen analysis.

c) Draw neat sketch of thickness.

d) Explain with principle, construction, working of electrostatic precipitators.

3. Attempt any THREE of the following : **12**

a) Draw neat and labeled diagram of Ball mill.

b) Derive the equation for critical speed of ball mill.

c) Draw and explain magnetic drum separator.

d) Explain in details positive type pneumatic conveyors.

4. Attempt any THREE of the following : **12**

a) A small scale industry having ball mill with diameter 900 mm and ball with diameter 50 mm. Calculate the critical speed of above ball mill ?

b) Derive material balance over screen, if 'A' be the total material feel to the screen, 'B' and 'C' are collected as oversize and undersize with mass fraction x_A, x_B and x_C.

c) Sketch with detail plate and frame filter press.

d) Differentiate between constant rate filteration and constant pressure filteration.

e) Sketch the following :

i) Anchor type Agitator

ii) Paddle type Agitator

iii) Radial flow pattern.

iv) Axial flow pattern.

Marks

5. Attempt any TWO of the following : **12**

a) Draw neat sketch and explain in detail principle, construction, working of cyclone separator.

b) Explain the concept of swirling and vortexing and method to prevent vortexing.

c) Compare belt conveyor, screw conveyor and chain conveyors. (Minimum 02 points)

6. Attempt any TWO of the following : **12**

a) Sketch and explain in detail wet scrubbers.

b) Explain principle, construction and working of rotary drum filter (Vacuum).

c) Sketch chain conveyor and explain industrial importance of conveyors.
