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3 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) 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) Give the classification of size reduction equipments.
 - b) State the Rittinger's law.
 - c) Define Mesh number.
 - d) List any two methods for separating solids from solid-liquid mixture.
 - e) State the principle of cyclone separation.
 - f) List the equipments used for transportation in industry.
 - g) What is axial flow and radial flow impeller?

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) State the industrial importance of size reduction operation.
 - b) Describe the construction and working of vibrating screen.
 - c) Draw a neat diagram of Dorr thickener and explain its working.
 - d) Describe the working of cyclone separator.
- 3. Attempt any THREE of the following:** **12**
- a) Describe the construction and working of Blake Jaw Crusher.
 - b) Find the operating speed of the ball mill from the following data
Diameter of ball mill = 500 mm
Diameter of ball = 50 mm
Operating speed of the mill is 35% of critical speed.
 - c) Compare ideal and actual screen. Draw graph to explain the same.
 - d) Describe the construction and working of belt conveyor.
- 4. Attempt any THREE of the following:** **12**
- a) Write the help of suitable diagram, describe the construction of ball mill.
 - b) Draw a neat labelled diagram of froth flotation cell. State its principle of working.
 - c) Explain the factors affecting the rate of filtration.
 - d) Draw a neat sketch of basket centrifuge and explain its construction.
 - e) Describe the construction and working of wet scrubber.

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

- a) With neat sketch explain construction of fabric filter.
- b) Explain the construction, working of sigma mixer with a neat diagram.
- c) Describe the working of pneumatic conveyer.

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

- a) State the principle of electrostatic separator and explain construction of electrostatic separator.
 - b) Explain the 1-2-3-2-1-2-3-2----- filtration system.
 - c) Describe the principle, construction and working of bucket elevator.
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