

312342

12526

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 answer 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) Define the term size reduction.
- b) Define the terms mesh number of screen aperture.
- c) Enlist the type of filtration equipments.
- d) State the industrial applications of fabric filter.
- e) Define the term mixing.
- f) State Bond's law and write the mathematical expression.
- g) Define the term sedimentation.

P.T.O.

- 2. Attempt any THREE of the following: 12**
- a) With the help of a neat diagram, write the construction of a Blake Jaw Crusher.
 - b) Define the term 'Cut diameter' and differentiate between Ideal and Actual Screen.
 - c) Explain the principle of working and construction of venturi scrubber.
 - d) Explain methods of prevention of swirling and vortex formation.
- 3. Attempt any THREE of the following: 12**
- a) State the advantages and disadvantages of Cyclone separator.
 - b) List out the characteristics of filter medium.
 - c) Describe the construction and working of Gravity Settling Tank.
 - d) Differentiate between Mixing and Agitation.
- 4. Attempt any THREE of the following: 12**
- a) With the help of a neat diagram, explain the construction of Ball Mill.
 - b) State the principle of working of Froth Flotation. Also write the significance of collectors Frothers.
 - c) Describe the working of Rotary Drum Filter.
 - d) Draw a net sketch of electrostatic precipitator.
 - e) Explain the construction of Sigma Mixer with a diagram.
- 5. Attempt any TWO of the following: 12**
- a) State the importance of conveyors. Write the industrial applications of :-
 - i) Belt conveyor
 - ii) Chain conveyor
 - iii) Pneumatic conveyor.
 - b) Draw a neat sketch of a vibration screen. Explain the factors affecting the performance of a screen.
 - c) Describe the construction and working of plate and frame filter press with a suitable diagram.

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Marks

6. Attempt any TWO of the following:

12

- a) Calculate the operating speed of the ball mill from the following data :-
Diameter of ball mill = 600 mm,
Diameter of ball = 50 mm
If –
- i) Operating speed is 55% less than the critical speed.
 - ii) Critical speed is 50% more than the operating speed.
- b) Describe the principal, construction and working of Magnetic Drum Separator.
- c) Explain the Laboratory Scale Batch Sedimentation Test with neat sketches.
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