22313

21819

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

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 names of any four size reduction equipments.

b) Define size reduction.

c) List the name of different screening equipments.

d) Give the working principle of Basket Centrifuge.

e) List the names of different equipments used for gas-solid separation.

f) Give any two applications of conveyers in industry.

g) Names the different types of agitators used in mixing.

Marks

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

a) Draw neat and labeled diagram of ball mill and give its working principles.

b) Explain the construction and working of vibrating screen.

c) Draw a neat diagram of rotary drum filter and explain its working.

d) Describe the working of cyclone separator with a neat sketch.

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

a) State kicks law in size reduction with mathematical equation.

b) Explain in brief Hammer mill with a neat sketch.

c) Describe the working of froth flotation cell and give its any two industrial application.

d) Explain the construction and working of a belt conveyor.

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

a) Calculate the operating speed of ball mill if operating speed is 55% of critical speed. Data:

(i) Diameter of Ball mill = 800 mm.

(ii) Diameter of Ball = 60 mm.

b) Draw the diagram of magnetic drum separator and give any two industrial applications.

c) Explain the construction and working of gravity settling tank used in sedimentation.

d) Describe methods to prevent vortexing

e) Explain the working of basket centrifuge with a neat sketch.

Marks

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

a) Explain the construction and working of electrostatic precipitator with a neat sketch.

b) With neat sketch, explain construction of muller mixer.

c) Give the principle of bucket elevator and explain its working with a neat sketch.

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

a) Explain any two types of agitators with suitable diagrams.

b) Describe plate and frame filter press.

c) Explain the chain conveyor with a neat sketch.