Registration No. : | | | | | | | | | | |

Total number of printed pages – 2

B. Tech

PEMT 5302

Fifth Semester Back Examination – 2014

MINERAL PROCESSING

BRANCH(S) : MM, MME

QUESTION CODE : L 303

Full Marks – 70

Time : 3 Hours

*Answer Question No. **1** which is compulsory and any **five** from the rest.*
The figures in the right-hand margin indicate marks.

1. Answer the following questions (any ten) : 2×10

   (a) What is pelletization ?

   (b) What is Froth flotation process ?

   (c) What is shatter strength test ?

   (d) Name two type of Dryers used for drying in mineral processing.

   (e) What is concentration criteria ?

   (f) In a ball mill how wearing of balls is compensated ?

   (g) What is optical separation ?

   (h) What is grinding efficiency of a ball mill ?

   (i) What do you mean by reduction ratio ?

   (j) What do you mean by sedimentation ?

   (k) What is Hindered Settling ?

   (l) What is angle of nip ?

2. What do you mean by agglomeration ? Discuss the importance of different agglomeration techniques with special reference to sintering and pelletizing in ferrous industries. 10

P.T.O.

3. Write short notes on any **two** of the following : 5×2

(i) Bauxite and Chromite ore deposit in Odisha

(ii) Gravity separation

(iii) Filtration

(iv) Industrial screening.

(v) Critical Speed of ball mill

4. (a) What is benification of ore ? Discuss the importance of iron ore beneficiation. 4

(b) Explain with a neat flow sheet beneficiation of iron ore. 6

5. (a) What is the basic principle of sintering ? What are its main objective ? 6

(b) Discuss the importance of laboratory sizing. 4

6. (a) What is an electrostatic separator ? What type of ore can be concentrated by this method ? 5

(b) Discuss the mineral preparation for magnetic separation and mention. 5

7. (a) What is heavy media separation ? Mention fluids which is used in heavy media separation with reference to coal washing. 5

(b) What is the basic principle of froth floatation process ? What are the ore minerals, suitable for concentration by froth floatation process ? 5

8. (a) What rotational speed in rpm would you recommend for a ball mill that is 1000 mm in diameter charged with 70 mm ball ? 4

(b) Name the different types of gyratory crushers. Explain the principle of operation of a Suspended-Spindle gyratory Crusher with the help of neat sketch. 6