

Note: Answer any Five full questions

1. (a) How power is generated using compressed air for underground mine working?
(b) How power is generated using steam for winders.
2. (a) Draw a neat sketch of pneumatically operated air leg and explain the Construction and working principle.
(b) Describe with a neat sketch, the working of a jack hammer.
3. (a) what are the Techno-Economic indices of mine transportation?
(b) Explain any two methods of Rope haulages used in coal mines, with their applications and limitations?
4. (a) Explain briefly the procedure of attaching a rope to the Reliance capel.
(b) What is rope splicing? Explain in detail the procedure for rope splicing.
5. (a) Explain briefly battery charging room with suitable sketch.
(b) Explain briefly Diesel Locomotive, with its application, limitation, advantages & disadvantages.
6. (a) Explain with a neat sketch the tensioning arrangements made on a trunk belt conveyor.
(b) Explain how material is transported using High angle conveyor, with a sketch.
7. (a) Explain briefly the types of winding drums used in mining Industry.
(b) Explain briefly the Koepe System of winding with a neat sketch.
8. (a) Explain with a neat sketch loading & unloading arrangement for skip winding.
(b) Find out the static torque at the beginning, middle and at the end of the wind when each cage weighing 10 tonnes, carries 6 tubs taring 0.5 tonnes and holding 1 tonne of coal, take drum diameter to be 2.5 m and the depth of the shaft is 1000 m. the rope weigh 10 tonnes.
