JHARKHAND Rai University
RANCHI

**End Semester/Reappear (Semester V) Examination December, 2024**

**Programme:B.Tech (MiE)**

**Course: Mining Machinery I** **Full Marks: 70**

**Course Code: 8PCCMiE301** **Time: 3 Hrs.**

**Enrolment no. _____**

| Q.No. | Questions | CO | Bloom Taxonomy Category | Marks |
|---|---|---|---|---|
| | **Section I** | | | |
| 1 | **Short Answer type questions.** | | | **4 x 5 = 20** |
| a | Differentiate how road header & Dint header is used in mining field. | CO1 | Analyze | |
| | or | | | |
| | Briefly explain any two types of the loading and transportation equipment used in underground mines. | CO1 | Analyze | |
| b | Classify and describe the different types of winders with their uses in different conditions. | CO2 | Analyze | |
| | or | | | |
| | Compare between Koepe winding system over drum winding. | CO2 | Understand | |
| c | Explain the Belt, chain & Gear drive transmission of power. | CO3 | Understand | |
| | or | | | |
| | Give a comparison on any two air compressors used in mining field . | CO3 | Understand | |
| d | Explain the test carried out to achieve a good mining wire ropes. | CO4 | Understand | |
| | or | | | |
| | List the different types of locomotives used in U/g mines. | CO4 | Remember | |
| | **Section II** | | | |
| **Long Answer type questions.** | | | | **3 x 10 = 30** |
| 2 | Suppose you are using Turbine pump in underground mines, illustrate its key features then describe its principle & working with diagram. | CO2 | Apply | |
| | or | | | |
| | Explain fittings of the suspension gear of winding system between rope & cage with neat diagram. | CO2 | Analyze | |
| 3 | List the various types of air compressors and explain the construction & working function of air compressors. | CO3 | Remember | |
| | or | | | |
| | A belt conveyor conveys a material of Belt width is 0.10 m, of bulk density 1.7 tone/m3, at a speed of 2.5m/s. Evaluate the carrying capacity of the belt conveyor in tone/hr. | CO3 | Evaluate | |
| 4 | Discuss the application of wire ropes in mines and distinguished between Lang`s Lay and ordinary Lay. | CO4 | Apply | |
| | or | | | |

| | | | | |
|---|---|---|---|---|
| | Differentiate Wire ropes based on operation & Construction in brief. | CO4 | Apply | |
| **Section III** | | | | |
| | **Application based questions** | | | |
| 5 | Suppose that two mines using one man riding system & another one car riding system in underground mine, then illustrate its applicable conditions and explain about briefly which is more feasible. | CO1 | Apply | **1 x 20 = 20** |
| | or | | | |
| | Being a mining engineer how will you select Shearer machine the Explain its constructional & working features shearer machine used in longwall mining with neat sketch diagram. | CO1 | Analyze | |

**Course Outcome:**

On the completion of the Course, the students will be able to:

**CO1:** Understand the classification & application of mine machinery.

**CO2:** Understand the winding system and safety features.

**CO3**: Able to apply the knowledge of power transmission system and installation in mines.

**CO4:** Explain the types, selection and uses of mining ropes and able to apply the knowledge of rope capping and splicing.