

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2023****Subject Code:3152201****Date:07-12-2023****Subject Name: Mine Machinery II****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Discuss the role of signaling system in winding. **03**
(b) Describe the principle and operation of coal cutting machine. **04**
(c) Explain head gear design with neat sketch. **07**
- Q.2** (a) Explain multi rope winding system. **03**
(b) Describe the selection of face loaders for coal mines. **04**
(c) Explain coal plough with their principle, operation and maintenance. **07**
- OR**
- (c) Explain continuous miner with their principle, operation and maintenance. **07**
- Q.3** (a) Compare the rigid guides with flexible guides. **03**
(b) Explain the pit-top layout with neat sketch. **04**
(c) List out different types of winding drums. Explain any one with neat sketch. **07**
- OR**
- Q.3** (a) Differentiate between cage winding and skip winding. **03**
(b) Explain the pit-bottom layout with neat sketch. **04**
(c) Explain Ward Leonard control system with neat sketch. **07**
- Q.4** (a) List out various safety devices used in mines. **03**
(b) Describe various shaft fittings provide in underground mines. **04**
(c) Explain the principle types, operation and maintenance of face loaders. **07**
- OR**
- Q.4** (a) Describe mineral handling and screening equipments. **03**
(b) Explain in brief list of screening equipment used in mines. **04**
(c) Explain the layout of faces for working with power loaders under varied conditions. **07**
- Q.5** (a) Describe the various construction features of Face loaders. **03**
(b) Discuss the selection of coal plough. **04**
(c) Explain electrical braking system of winding with neat sketch. **07**
- OR**
- Q.5** (a) Discuss the efficiency of coal cutting machines and their selection. **03**
(b) Discuss the selection procedure for continuous miner. **04**
(c) Explain mechanical braking system of winding with neat sketch. **07**
