

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-V • EXAMINATION – WINTER 2013**

**Subject Code: 152205****Date: 11-12-2013****Subject Name: Underground Coal Mining****Time: 10.30 am - 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.

- Q.1** (a) Discuss the various factors affecting the selection of underground coal mining methods. **07**  
 (b) Explain origin of coal and theories of origin of coal. **07**
- Q.2** (a) Discuss pneumatic stowing and mechanical stowing. **07**  
 (b) Explain Hydraulic stowing & disadvantages. **07**
- OR**
- (b) Describe the Retreating method of Long wall system. Write the advantages of it. **07**
- Q.3** (a) Give the principle of designing pillar extraction techniques. **07**  
 (b) Explain the working of (a) load haul dumper (b) side discharge loader **07**
- OR**
- Q.3** (a) Give the method of development district with layout and manpower if seam is 8.53 m thick, the dipping of seam is 1 in 14 and pillars were 27.4 m \* 27.4 m center to center. **07**  
 (b) What do you understand by barrier and preparatory stopping in board and pillar method of mining? **07**
- Q.4** (a) Which factors are considered in organization of long wall face **07**  
 (b) Give the types of modern shearer with its components description in brief. **07**
- OR**
- Q.4** (a) Write the short note on following **07**  
 (1) Incubation period (2) cyclic long wall (3) non cyclic long wall method  
 (b) What are precautions against fire during and after depillaring operation **07**
- Q.5** (a) How characteristics of roofs, floors and associated rocks affect the working of underground coal mines. **07**  
 (b) Describe in detail the Hydraulic profile and rate of stowing . **07**
- OR**
- Q.5** (a) What is the principle of stowing? What is pack walls stowing? **07**  
 (b) Draw a neat sketch of general arrangement of sand stowing plant with surface and underground face arrangement. **07**

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