Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–V EXAMINATION – WINTER 2015**

**Subject Code: 152205** **Date:11/12/2015**

**Subject Name: Underground Coal Mining**

**Time: 10:30am to 1:00pm** **Total Marks: 70**

**Instructions:**

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | **(a)** | What do you understand by term 'Panel System' of coal mining? How the size of a panel is arrived? | **07** |
| | **(b)** | Explain origin of coal and theories of origin of coal. | **07** |
| **Q.2** | **(a)** | Give the important characteristics of rocks commonly associated with coal seam. | **07** |
| | **(b)** | What are the various factors affecting the selection of u/g coal mining methods. | **07** |
| | | **OR** | |
| | **(b)** | Describe different methods of pillar extraction by caving. Under what condition each one of them is most suitable? | **07** |
| **Q.3** | **(a)** | Give the purpose of preparatory stopping. Describe with the help of sketches a preparatory stopping suitable in highly gassy mine. | **07** |
| | **(b)** | Write notes on Hydraulic profile and H: L ratio in hydraulic stowing system. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Describe depillaring system for a coal seam 4.7m thick in board & pillar methods. Also explain sequence of pillars extracted with sketch. | **07** |
| | **(b)** | Write a note on Mining by Sublevel Caved Rooms. | **07** |
| **Q.4** | **(a)** | What are the precaution against fire during and after depillaring operation? | **07** |
| | **(b)** | Write a note on any two.<br>(1) Pillar extraction with stowing.<br>(2) Room and Pillar mining.<br>(3) Length of a longwall face. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Describe with the help of sketches mixing of sand and water for hydraulic stowing. | **07** |
| | **(b)** | Give the principle of designing pillar extraction techniques. | **07** |
| **Q.5** | **(a)** | Write a note on development and maintenance of longwall faces. | **07** |
| | **(b)** | Describe retreating methods of Long wall system. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Discuss any one of the following method with with their merits, demerits and applicability.<br>(1) Pneumatic stowing<br>(2) Mechanical stowing | **07** |

**(b)** What are the materials used for stowing? Explain their comparative application. **07**

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