

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- V (New) EXAMINATION – WINTER 2019

**Subject Code: 2152206**

**Date: 25/11/2019**

**Subject Name: Underground coal Mining**

**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.

		MARKS
<b>Q.1</b>	(a) Explain: Longwall method of Mining.	<b>03</b>
	(b) What is stratified deposit? List out its distribution in India.	<b>04</b>
	(c) Explain in detail: (a) In-situ theory (b) Drift theory	<b>07</b>
<b>Q.2</b>	(a) List out various coal face machineries used for continuous bord and pillar mining method with applicability.	<b>03</b>
	(b) Explain the cycle of operation for longwall mining method.	<b>04</b>
	(c) Explain with neat sketch coal cutting machine with its advantage and disadvantages.	<b>07</b>
<b>OR</b>		
	(c) Explain with neat sketch side discharge loader with its selection criteria.	<b>07</b>
<b>Q.3</b>	(a) Explain: Bord and Pillar with neat sketch	<b>03</b>
	(b) Write down merits and demerits of bord and pillar against longwall mining method.	<b>04</b>
	(c) Explain the principles of pillar extraction techniques with its problems with factors influenced on it.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Explain: Factor of safety	<b>03</b>
	(b) Explain: Size of panel and Size of pillar	<b>04</b>
	(c) Explain the development of bord and pillar working using gathering arm loaders and shuttle cars.	<b>07</b>
<b>Q.4</b>	(a) Write the advantages of powered supports.	<b>03</b>
	(b) Explain: planning steps for longwall mining.	<b>04</b>
	(c) Explain with neat sketch: SERDS with its merits and demerits.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Compare the advantages of longwall advancing and longwall retreating.	<b>03</b>
	(b) What are the categories of powered supports? Explain in brief.	<b>04</b>
	(c) Explain each elements of longwall face with a sketch.	<b>07</b>
<b>Q.5</b>	(a) Write a short note on preparatory arrangement for stowing.	<b>03</b>
	(b) Write down merits and demerits of stowing.	<b>04</b>
	(c) Explain with sketch (a) Hydraulic Profile (b) Rate of stowing	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) Define stowing with their principle.	<b>03</b>
	(b) Write note on pipe jam in hydraulic stowing.	<b>04</b>
	(c) List out different stowing methods and explain any two with neat sketch.	<b>07</b>

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