Code No.: **40721**

MR14

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)
Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, APRIL 2019

Subject: **Rock Mechanics**

Branch: **MINING**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer ALL questions of the following **5x1Mark=5 Marks**

1. What is compressive strength of a Rock?
2. What is purpose of stress analysis around mine openings?
3. What are the different types of subsidence?
4. What is trough?
5. What is finite difference method?

II. Answer ALL questions of the following **10x2Mark=20 Marks**

1. What information can be drawn from mechanical properties of rock?
2. What is time dependent behavior of rock?
3. What is meant by "ideally plastic"?
4. What is brittle fracture?
5. Explain about mechanism of subsidence.
6. What are the different subsidence prediction methods?
7. What is photo elasticity?
8. Why in-situ stresses should be determined?
9. Write any FOUR application of FEM in mining?
10. What is discontinuous model?

PART-B

Answer ALL questions of the following **5x10 Marks= 50Marks**

1. What are the physico mechanical properties of rock?

OR

2. Explain about time dependent properties of rock.
3. Briefly outline the applications of rock mechanics in mining engineering.

OR

4. What are the factors to be considered for design of supports in B & P workings? Explain each, with suitable examples.
5. What are the causes of subsidence? Explain them with suitable examples?

OR

6. Explain, with a suitable diagram, mechanics of subsidence.
7. Explain different types of slope failures with the help of suitable diagrams?

OR

8. Explain, with the help of a suitable line diagram, "flat jack" method of in- situ stress measurement? What are it's applications and limitations.
9. What is meant by FEM? What are the different FEM methods? Explain.

OR

10. Differentiate between FDM and BEM.

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IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, APRIL-2019

Subject: **Rock Fragmentation Engineering**

Branch: **MINING**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer **ALL** questions of the following **5x1Mark=5 Marks**

1. List the types of drill bits used for drilling.
2. What is VOD?
3. What is meant by blown out shots?
4. What is meant by controlled blasting?
5. How to introduce the VOD probe in bore hole.

II. Answer **ALL** questions of the following **10x2Marks=20 Marks**

1. Why drilling became an important aspect in mining?
2. How to select a drill?
3. What is surface relay?
4. Write a short note on burn cut pattern.
5. List the secondary blasting techniques.
6. What is the impact of confinement on VOD?
7. Write a short note on cushion blasting.
8. What is meant by air blast?
9. List out the blast monitoring instruments are used during blasting.
10. List the different cut-patterns used in UG coal mines.

PART-B

Answer **ALL** questions of the following **5x10 Marks= 50Marks**

1. With neat sketches explain briefly about mechanics of rotary percussive drilling

OR

2. With a neat sketch explain the method of working of percussive drill.
3. What is production drilling? Discuss the drilling operation practiced in large opencast coal mine with neat sketch.

OR

4. Discuss the blasting operations in large open pit mining.
5. Discuss the blasting operations in underground coal mine with neat sketch.

OR

6. Explain the procedure for dealing of the misfired holes.
7. What is controlled blasting? Discuss the various types of controlled blasting techniques.

OR

8. Why VOD is important factor in blasting? Explain it with appropriate conditions.
9. What is rock fragmentation? How is it useful in optimizing the productivity?

OR

10. With neat sketch briefly explain the method of priming in surface mine blasting.

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IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, APRIL 2019

Subject: **Mineral Processing**

Branch: **MINING**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer ALL questions of the following **5x1Mark=5 Marks**

1. What is Ore?
2. What is screening?
3. What is reverse floatation?
4. What are limitations of electrical separator?
5. Write the field application of magnetic separation?

II. Answer ALL questions of the following **10x2Mark=20 Marks**

1. Write limitations of mineral processing?
2. What do you understand by Open Circuit and Closed Circuit grinding?
3. What is settling velocity?
4. What is Hydro Cyclone?
5. What are reagents?
6. What are collectors?
7. Write any four applications of high tension electrical separator.
8. Write down the classification of electrical separation process.
9. Explain about dry drum magnetic separator?
10. Write differences between wet magnetic separator and dry magnetic separators?

PART-B

Answer ALL questions of the following **5x10 Marks= 50Marks**

1. Explain about Scope, objectives and limitations of mineral processing.

OR

2. What is Crushing? Draw Jaw Crusher and explain its working.
3. Discuss the sieve analysis to be performed in the processing plant with neat sketch.

OR

4. What is Jigging? Explain about denver jig with neat sketch.
5. What is froth floatation? Discuss the working principle of froth floatation with neat sketch.

OR

6. Explain the denver flotation cell with neat sketch?
7. Explain about belt and roll type electrostatic separator with neat sketch.

OR

8. Discuss the working principle of Electrical separators with neat sketch.
9. List different types of industrial magnetic separators? Explain with diagram belt type wet magnetic separator and its operation?

OR

10. Draw a simplified flow sheet for the various stages involved in the processing of coal and explain in detail?