Code No.: 52528

MR15(2016-17-Batch)

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 REGULAR END EXAMINATIONS, NOVEMBER-2019

Subject: **INTRODUCTION TO MINERAL PROCESSING**

Branch: **MINING**

Time: 3 hours **Max. Marks: 60**

Answer ALL questions of the following **5x12 M= 60M**

1. a) What are the objective and limitations of mineral processing?
   b) Explain the Blake jaw crusher with neat diagram.

OR

2. a) Write about the scope and objective of mineral processing.
   b) What are the advantages of mineral processing?
3. Sphalerite and magnetite particles at size range of 5.2 to 30 microns are present in a mixture. Determine the size ranges of pure Sphalerite, pure magnetite and the third product of mixture which can be obtained if separated in a free settling classifier. The specific gravities of sphalerite and magnetite are 3.9 and 5.0 respectively.

OR

4. Describe the working principle of wilfly table and draw a suitable sketch for the same.
5. a) Explain the Denver flotation cell with neat diagram.
   b) What is the mechanism of frothing action?

OR

6. a) Describe washing of non coaking coal with flow chart. Write notes on each process separately.
   b) Explain the constructional features and working principle of Hartz Jig with neat sketches.
7. Explain the working principle of Roller crusher.

OR

8. a) What is the principle and function of plate type electrostatic separator?
   b) Explain separation of one mineral using the above principle.
9. Draw a simplified flow sheet diagram for a composite scheme of Iron ore processing in plant.

OR

10. Explain with neat sketches processing of manganese ore

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IV B.TECH I SEMESTER REGULAR END EXAMINATIONS, NOVEMBER-2019

Subject: **UGMMT**

Branch: MINING

Time: 3 hours **Max. Marks: 60**

Answer ALL questions of the following **5x12 M= 60M**

1. a) Explain shape, size and position of development working in related to the ore body.
   b) Draw the layout of the drifts, cross cut in ore body.

OR

2. a) Explain shape, size and position of development working in related to the ore body.
   b) Draw the layout of the drifts, cross cut in ore body.
3. a) Explain the working of alimak raise climber with neat sketch.
   b) Write the advantages and disadvantage of alimak raise climber.

OR

4. a) What are the machinery used for development of stoping method?
   b) How stoping method is selected? Give the list of various techniques to select a stopin, method.
5. Explain the working of sublevel caving with neat sketch.

OR

6. a) Explain block caving with a neat sketch .
   b) List the advantages and disadvantages of block cave.
7. Explain the mucking, ventilation, support, haulage and dumping in underground mines.

OR

8. A decline has to be excavated to access a metallic orebody which exist from depth of 50m to 650m having mineable grade. The dip of the ore body is 35 degree, width of 8m, thickness of 5m and strike length of 600m. The ore and host rocks are competent. You are asked to give the list of the resources required, layout and duration to complete the decline.
9. Explain about the principles of in-situ leaching.

OR

10. As a mining engineer what is your role to increase the production of a mine.

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IV B.TECH I SEMESTER REGULAR END EXAMINATIONS, NOVEMBER-2019

Subject: **MINE GROUND CONTROL**

Branch: **MINING**

Time: 3 hours **Max. Marks: 60**

Answer ALL questions of the following **5x12M=60 M**

1. a)What do you mean by ground control? Briefly explain ground control practices used in coal mines.
   b) What are the igneous intrusions in coal measure strata and their significance in ground control?

OR

2. a) Explain the ground control practices used in mechanized longwall mines. [4M]
   b) Write about the importance of ground control in mines for improving safety and production. [8M]

3. a) What is induced and inherent stress? [4M]
   b) Compare various methods used for insitu stress measurement and explain. [8M]

OR

4. a) Define roof fall. Discuss different types of roof falls are occurred in u/g mines. [8M]
   b) What are the different parameters influenced for load sharing by the face support in longwall working. [4M]

5. a) A longwall mining is carried out by caving method with induced blasting. The panel and face lengths are 1000 m and 300 m respectively has been observed subsidence. Suggest a suitable method for the subsidence measurement.
   b) Describe a mining method which will have minimum subsidence.

OR

6. a) Write about damage and prevention of damage due to subsidence
   b) Explain the factors influencing the angle of draw.

7. a) Explain the design of waste dumps with neat sketches. [9M]
   b) An opencast mine has four benches. The height, width and face angle for each bench are 13 m, 30 m and 70^0 respectively. What is the overall slope angle of the benches in degrees? [3M]

. OR

8. a) Explain the method of calculating factor of safety for a slope undergoing circular failure. The answer should also include the types of slopes in which circular failures take place. [4M]
   b) What are the factors influencing design of coal pillars in India? Explain. [8M]

9. a) Describe a frame type and chock type of powered support. Explain their difference.
   b) Write about safari supports and side supports.

OR

10. a) What is meant by strip packing? Explain [4M]
    b) What is meant by shot creting? Write about its advantages and disadvantages. [8M]

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IV B.TECH I SEMESTER REGULAR END EXAMINATIONS, NOVEMBER-2019

Subject: **ADVANCED MINING MACHINERY**

Branch: **MINING**

Time: 3 hours **Max. Marks: 60**

Answer ALL questions of the following **5x12M=60 M**

1. Explain, with a line diagram, the constructional features and operation of a Koepe winder.

OR

2. a) Write short notes on shaft sinking.
   b) Discuss on Rope Guides.
3. Discuss on:
   a) Electrical braking
   b) Depth indicator

OR

4. a) Explain any one type of mechanical breaking system in winder.
   b) How is winding performed from different levels in shaft?
5. Explain construction and working of arm loader.

OR

6. a) Explain the man-power transport in underground coal mines.
   b) Explain cutter loaders.
7. a) Explain the construction and working of a centrifugal pump with a labelled diagram. [7M]
   b) A centrifugal pump has been installed for delivering 3 cubic meters of water per minute against a total head of 250 meters. Calculate the H.P of motor if the efficiency of the pump is 80%. [5M]

OR

8. a) What is a characteristic curve? Explain the characteristic curves of a turbine pump.
   b) Explain shuttle cars used in continuous mining along with its safety features.
9. Explain the construction, working and applicability of a dragline with a neat diagram.

OR

10. a) Explain why open cast mines are highly productive when compared to underground mines.
    b) Draw the neat sketch of dipper shovel.

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IV B.TECH I SEMESTER REGULAR END EXAMINATIONS, NOVEMBER-2019

Subject: **RENEWABLE ENERGY SOURCES**

Branch: **COMMON TO CE,ME,MINING**

Time: 3 hours **Max. Marks: 60**

Answer ALL questions of the following **5x12 M= 60M**

1. a) With neat sketch,Explain the working principle of any one type of Pyrhelimeter.
   b) Explain about Pyranometer with neat sketch.

   OR
2. a) Explain briefly about 'Estimation of average solar radiation.'
   b) Illustrate types of solar radiation data.

3. a) Explain about materials for Flat Plate Collector.
   b) Explain Solar Water Heater with a neat sketch.

   OR
4. a) What are the different operating parameters that influence functionality of solar collectors? Explain.
   b) List the advantages and disadvantages of Flat-Plate collectors.

5. Describe with neat sketch working principle of any two types of bio-gas digesters.

   OR
6. a) Discuss the advantages and disadvantages of horizontal and vertical axis wind mills.
   b) Describe the main consideration in selecting the site for wind generator.

7. a) Explain the advantages and disadvantages of open cycle OTEC system.
   b) Explain the principle of open cycle OTEC system with suitable diagram.

   OR
8. a) With the help of a neat diagram, explain the working of a liquid dominated single flash steam system.
   b) Explain the working of mini hydropower plant with a neat layout diagram.

9. a) Draw schematic diagram of an MHD power generating system and explain the functioning of the system.
   b) Explain the working principle and operation of a Fuel Cell.

   OR
10. a) Explain magnetic flux.
    b) Explain MHD engine with neat sketch.