

Code No.: 40711

MR14

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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

III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, NOVEMBER-2019

Subject: UNDERGROUND COAL MINING TECHNOLOGY

Branch: MINING

Time: 3 hours

Max. Marks: 75

PART – A

I. Answer ALL questions of the following

5x1M=5 M

1. In Seam Mining
2. Define the term goaf.
3. What is meant by ventilation district?
4. What is meant by Longwall mining?
5. Long Wall Face .

II. Answer ALL questions of the following

10x2M=20 M

1. What is general principle of Bord& Pillar workings?
2. What are the different modes of opening underground mine?
3. What do you know about SSR?
4. Name one continuous miner used in Bor& pillar workings.
5. What are the different materials used for stowing?
6. Explain about levels and districts in Bord& Pillar method.
7. What are the different types of supports used in Longwall method?
8. What are different longwall methods?
9. Cycle of operation at a Long wall face.
10. What are the different types of depillaring?

PART-B

Answer ALL questions of the following

5x10 M= 50M

1. Explain briefly about horizon mining. Write its advantages and disadvantages.

OR

2. Briefly explain the method of opening a seam into levels and districts.
3. A coal seam of thickness 2m is present at a depth of 100m; mode of working is bord and pillar method. Consider the output of mine is 2MT. calculate the powder factor and OMS. Assuming all favorable conditions.

OR

4. What are the safety factors you need to kept in mind while you extract coal from a seam using long wall extraction?
5. A coal seam of 4.0 m seam is to be extracted with Bord and Pillar extraction? Explain the procedure of extraction using Blasting for coal extraction and loading and transport using LHDs? Explain with a neat diagram?

OR

6. Describe briefly about blasting gallery method.
7. What are different types of pillar extraction techniques? On which factors you need to decide what is the type of depillaring extraction?

OR

8. Compare bord and pillar method with Longwall method.
9. Advantages and disadvantages of opening a longwall face in a coal seam.

OR

10. Explain briefly about mechanized method of extraction of Longwall panel with DERD.

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III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, NOVEMBER-2019

Subject: SURFACE MINING TECHNOLOGY

Branch: MINING

Time: 3 hours

Max. Marks: 75

PART – A

I. Answer ALL questions of the following

5x1M=5 M

1. Define safety Berms.
2. What should be the bench width?
3. Write the name of any two machineries for used as a loader for surface mine.
4. What is ultimate pit slope angle?
5. What is ground slicing?

II. Answer ALL questions of the following

10x2M=20 M

1. Explain the cyclic method of working in opencast mining.
2. Draw a coal bench with its dimensions and bench angle.
3. Where the bucket wheel excavator is used and what are the advantages of this method?
4. What is Plaster Shooting?
5. Precautions while drilling over the developed pillars.
6. For which minerals Dredging method is applicable?
7. Write a note on ripper-dozers combination.
8. What is the function of a scraper? What is meant by pay loader?
9. Write any four environmental problems due to surface mining.
10. Discuss maintenance of Haul roads.

PART-B

Answer ALL questions of the following

5x10 M= 50M

1. What are the factors which decide the method of working? Explain each factor.

OR

2. Explain the advantages of surface mining. If the value of ore is RS. 600 per tonne, Production cost Rs. 400 per tonne and cost of overburden removal Rs. 50 per m³, calculate the break even stripping ratio in m³/tonne.
3. Explain the method of extraction by shovel dumper combination in detail?

OR

4. What is working principle, Cycle of operations and limitations of a Ripper?
5. Explain any two:- i. Power shovel ii. Surface miner iii . Bucket chain excavator

OR

6. How many drills are required if the

Production 3MT

No of shift 2

Working per day 10 hours

Bench height 8 m

Overburden ratio 1:3

Spacing and burden ratio 2:2 Assume other conditions.

7. Explain the working principle of Dozer, grader and loader? Where they are used?

OR

8. What are the basic design principles of large opencast mines in India?
9. Explain the concept of continuous surface miner? Where it is used and how it works? Find the feasibility

Cost of mineral Selling price= Rs. 1800 per tone

Cost of the OB removal per cu.m = Rs.300

Other costs per tonne = Rs. 50

Find the economical ratio of stripping?

OR

10. Write any five recent developments in the deployment of heavy earth moving machineries in the surface Mines.

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III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, NOVEMBER-2019Subject: **MINE MECHANISATION-I**Branch: **MINING****Time: 3 hours****Max. Marks: 75****PART – A****I. Answer ALL questions of the following****5x1M=5 M**

1. Function of clutch and brake in mining machinery.
2. Rope Haulages and its working .
3. Importance of crossings.
4. Types of Stage loaders.
5. Importance of Coal Drills.

II. Answer ALL questions of the following**10x2M=20 M**

1. How the OC Engine works as a prime mover in mining technology?
2. What is the role of pneumatic power in excavation of underground mines?
3. Write a brief note on Rope splicing?
4. What are the limitations of haulages?
5. What are the minimum requirements needed for track extension?
6. Explain briefly about fixed clip monocable system?
7. What are the advantages of locomotive haulages over rope haulages?
8. What are the main safety precautions in handling of conveying systems?
9. What are the different types of drills used in mechanized open cast mines?
10. How Surface drill rigs perform operations in mining?

PART-B**Answer ALL questions of the following****5x10 M= 50M**

1. How do you design a suitable prime mover for underground mines? How the braking system functions in a mining environment? Describe the need of Hydraulic power for braking system.

OR

2. Differentiate between Chain Drive and Belt Drive in mining technology? What type of gearboxes are used for mining transmissions? Describe the limitations of Pneumatic power in mining.
3. Describe the constructional features of Mining rope haulage system? Differentiate between Direct rope and Balanced Rope haulages? What are the main maintenance requirements of a rope?

OR

4. Compare Gravity rope haulage with direct rope haulage in mining? Discuss the different parameters between Direct, Endless. Main and Tail Rope haulages.
5. Describe construction and maintenance of underground railway tracks as per the safety standards ? List out different types of railway crossings.

OR

6. Describe the different types of turn tables useful in mining technology? How they are designed. What technical benefits achieved from it? Discuss briefly about the operation of aerial ropeways.
7. How the belt conveyors are useful for coal mining? Describe the different types and sizes of belt available in it? How the capacity of the belt conveyor is calculated? What are the safety standards available in designing of a belt conveyor?

OR

8. Explain the construction, maintenance and operation of a diesel locomotives? What are the advantages and limitations over Battery operated locomotives? Distinguish between rope and locomotive haulages?
9. Describe the different types of stone drilling machines? What are the basic safety standards that followed during the design and installation of stone drills?

OR

10. Explain the suitable procedure involved in designing of Coal Drills? Describe their types with neat sketches. How the safety standards are followed while designing coal drills?