Code No.: **40712** | **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, JUNE-2018

Subject **Mine Mechanization**

Branch: **MINING**

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

PART – A

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

1. What is coupling?
2. What is haulage?
3. What is curve?
4. What is conveyor?
5. What is drill?

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

1. What is gear?
2. What is clutch?
3. What is clifton pulley?
4. What is rope splicing?
5. What is super elevation?
6. What is crossing?
7. What is shuttle car?
8. What is BSL?
9. What is percussive drilling?
10. What is down the hole drill?

PART-B

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

Q1. A cord hungs over a flat pulley supports a weight of W_1 at one end and W_2 at the other end. If the coefficient of friction is 0.3., find the greatest ratio of W_1 to W_2 possible without the cord slipping. Assume angle of contact is 180 degrees.

(OR)

Q2. What is prime mover for mining machine? Describe the working principle of any one prime mover.

Q3. What is endless rope haulage? Describe the working principle of this haulage system.

(OR)

Q4. What are the safety devices used in haulage system.

Q5. Describe the method for laying of haulage track in the mine.

(OR)

Q6. Write the working principle of mono cable aerial ropeway with neat diagram.

Q7. What is locomotive? Write the working principle of trolley wire locomotive.

(OR)

Q8. Write short notes on i. Draw bar pull ii. Exhaust conditioner

Q9. What is production drilling? Describe the principle of rotary drilling?

(OR)

Q10 Describe the working principles of hand held drill used in bord and pillar mine.

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, MAY-2018

Subject: **Underground Coal Mining Technology**

Branch: **Mining**

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

PART – A

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

1. Define the term face.
2. As per CMR what is ideal gallery dimension?
3. Define goaf.
4. What is meant by Longwall mining?
5. What is meant by cyclic Longwall working?

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

1. What is meant by strength of coal pillar?
2. What are the different methods of developing pillars?
3. What are the different types of machinery employed in bord and pillar method?
4. What do you know about SSR?
5. What are the problems associated with pillar extraction?
6. What are the different materials used for stowing?
7. What are the different types of supports used in Longwall method?
8. What are the different types of Shearer?
9. What is meant by cyclic Longwall working?
10. What are the applicable conditions for employing plough?

PART-B

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

1. What are the different factors that influence selection of method of working in underground coal mine?

(OR)

2. Explain briefly about horizon mining. Write its advantages and disadvantages?
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 applicable conditions for working bord and pillar method? Write its merits and demerits?
5. Describe briefly about step method and step diagonal methods of pillar extraction with LHD.

(OR)

6. With neat sketches explain the procedure of pillar extraction in contiguous seams
7. Differentiate Longwall advancing method with Longwall retreating method. Write a short note on Longwall advancing with stowing.

(OR)

8. Draw an organization chart for mechanized Longwall working. What are the advantages and disadvantages of Longwall mining?
9. Write the difference between underground coal mining and opencast mining?

(OR)

10. What are the safety provisions related to gate end box? Explain

Code No.: **40709** **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, MAY-2018

Subject: **Mine Environmental Engineering-I**

Branch: **Mining**

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

PART – A

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

1. What is marsh gas? Where is it finding in the gallery?
2. Write the formula for equivalent orifice?
3. What is use of evasee in mines?
4. What is descensional ventilation?
5. Define geothermic gradient?

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

1 Explain relative Humidity?
2. Explain methane Layering?
3. Write any two artificial aids to NVP?
4. What is motive column?
5. Draw the pv characteristic curve for fans in parallel?
6. What is difference between fans in series and parallel?
7. What do mean by homotropal and antitropal ventilation?
8. Write any two flow control devices used in Mines?
9. What is use of ventilation survey?
10. What is the use of profilometer?

PART-B

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

1. Write about different types of damps in mines? And write the physiological effects of black damp and white damp?

(OR)

2. Explain about a) PS detector b) MSA methenometer ?
3. A DC shaft is 465m deep and the average temperature of the downgoing air is 300 C. The UC shaft has equal depth but the average air temperature in that shaft is 370 C. What assistance, expressed in HP does this difference in air temperature render when the air passing the DC shafts 100 m3/sec (assume average barometric pressure in DC shaft to be 750 mm of HG

(OR)

4. Describe the change in the direction of natural ventilation during summer and winter. How is natural ventilating pressure calculated from air densities?
5. What are the factors considering in selecting mine fan?

(OR)

6. a) Compare the Forcing and Exhaust systems of ventilation system?
   b) What are advantages and disadvantages of using Mine Fans on surface?
7. Write a short note on a) air crossings b) doors c) ventilation stoppings?

(OR)

8. Explain different air measuring instruments used in mines?
9. What is Ventilation Survey? How is carried out in Mines? What are the different instruments required for the same?

(OR)

10. Explain about Hardy-Cross method?

Code No.: **40710** **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, MAY-2018

Subject: **Surface Mining Technology**

Branch: **MINING**

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

PART – A

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

1. Define safety Berms.
2. Define bench height and bench width.
3. Write the name of any two machineries for used as a loader for surface mine.
4. What are the purposes of grader for opencast project?
5. What is period of a calendar year for a mining industry?

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

1. Define stripping ratio and break-even stripping ratio and their purposes for opencast mining.
2. Explain the basic difference between open-pit and opencast mining.
3. Define safety berms, spacing, burden and ramps.
4. Write a note on types of drill bits.
5. In a mine for one shovel and six dumpers are assigned. The shovel loading time per truck is 5 minutes, and truck cycle time 20 min. calculate the match factor.
6. Explain briefly the working principle of bucket wheel excavator.
7. Write a note on ripper-dozer combination.
8. Explain briefly the purposes of placer mining and sea bed mining.
9. Write some latest safety features in HEMM.
10. Write any four environmental problems due to surface mining.

PART-B

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

1. Explain in details about different stages of Mining. What is the status of surface mining in India?

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 m^3, calculate the break even stripping ratio in m^3/tonne.

3. Write briefly the statutory provisions applicable to forming benches in opencast mines. Write a note on box cut.

OR

4. Explain the basic components of a drill machine and their applications. The operating condition of a rotary rock drill are: applied thrust:6.75 KN,Revolution: 200 and penetration rate: 0.20m/min. Calculate the work done per revolution in Nm.

5. Explain any two:-
   i. Power shovel
   ii. Surface miner
   iii. Bucket chain excavator

OR

6. A dragline with $20m^3$ bucket capacity and 110 m boom length is employed for removal of overburden from an opencast project. The avg. depth of overburden is 20 meter. Determine the expected time (in hour) to shift dragline to another place. When, bucket fill factor = 70%, job efficiency = 82%, Cycle time = 65 seconds, Avg. surface area of overburden = 250 m^2 and avg. utilization of machine = 80%.

7. How the scrappers are classified? Describe the essential components of the scraper and explain their purpose.

OR

8. Explain any two:-
   i. Backhoe loader and its components
   ii. Dumper and factors of its selection for surface mining
   iii. Exploitation system of ocean mineral resources

9. Explain in details relevant provisions for coal mines and metalliferous mining regulation.

OR

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

Code No.: 40708 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, MAY-2018

Subject: **Mine Surveying-I**

Branch: **MINING**

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

PART – A

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

1. Define Azimuth.
2. What is meant by change point?
3. What is meant by contour interval?
4. What is meant by traversing?
5. Define the term triangulation.

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

1. Derive the formulae for converting WCB into QB.
2. The magnetic bearing of a line AB is S 52°28′E. Calculate the true bearing if magnetic declination is 5°22′ East.
3. What is meant by reciprocal levelling? Derive its equation
4. What is meant by meridian distance method?
5. Define line of collimation and Datum.
6. What is the principle of electronic theodolite?
7. What is meant by latitude and departure?
8. Define the terms open traverse and closed traverse.
9. What are the different methods of triangulation survey?
10. What are the different instruments used in surveying?

PART-B

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

Q1. What is meant by surveying? What are the different branches of surveying?

(OR)

Q2. The following bearings are taken on a closed traverse

Line	FB	BB
AB	71°05′	250°20′
BC	110°20′	292°35′
CD	161°35′	341°45′
DE	220°50′	40°05′
EA	300°50′	121°10′

Determine correct bearing of the line.

Q3. The following staff readings were observed successively with a level, the instrument having been moved after second, fourth and seventh readings: 1.224; 1.356; 1.334; 1.654; 2.221; 2.432; 1.962; 2.084; 1.568; 2.484, 2.964 meters. Find the RL of the points using rise and fall method, if RL of first point is 686.234m

(OR)

Q4. What is meant by Zero circle? The area of an irregular boundary was measured using a planimeter. The initial and final readings were 9.036 and 1.645, respectively. The zero mark on the dial passed the index mark twice. The tracing point was moved in clockwise direction and needlepoint was outside the plan. Calculate the area of the plan if the multiplying constant of the planimeter is 100 Sq.cm

Q5. Describe briefly about direct method of contouring.

(OR)

Q6. What is meant by theodolite? With a neat sketch describe the constructional features of theodolite?

Q7. What are the different methods of traversing an area? Explain any one method using theodolite.

(OR)

Q8. In the traverse ABCDEA

Line	Length (m)	Bearing
AB	234	64°
BC	345	88°
CD	188	148°
DE	166	268°
EA	422	324°

Determine the closing error precision of traverse.

Q9. In a triangulation survey, the altitudes of two stations *A* and *B*, 110 km apart, are respectively 440 m and 725 m. The elevation of a peak P situated at 65 km from *A* has an elevation of 410 m. Ascertain if *A* and *B* are intervisible, and if necessary, find by how much *B* should be raised so that the line of sight nowhere be less than 3 m above the surface of ground. Take earth's mean radius as 6400 km and the mean coefficient of refraction as 0.07.

(OR)

Q10. What are the different steps followed in triangulation survey? Explain briefly.