MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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

II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2019

Subject: Extraction of Mineral Deposits

Branch: MINING

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

PART – A

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

1. What are the different types of Underground and Surface mining methods?
2. What is Chock support system used in a below ground mine?
3. What is prop density?
4. Write the advantages of Tunnel boring machine.
5. Define thawing.

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

1. How mining will contribute to national economy?
2. Write any two differences between underground mining and opencast mining.
3. Explain about Rotary Drilling
4. List out different accessories used in blasting.
5. What are different kinds of supports used at a junction in a below ground mine?
6. What are different kind of explosives used in a below ground mine for blasting?
7. What are different modes of entry into a mine?
8. What are the cycle of operations to be followed during shaft sinking?
9. What is cementation method of shaft sinking?
10. Write about the any one of the modern techniques of Shaft sinking.

PART-B

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

1. Mining is a basic industry - Explain.

OR

2. Discuss the distribution of following minerals in Telangana state
    i) Coal ii) Copper iii) limestone   iv) iron ore v) granite
3. What are the methods of drilling available in mining? Explain about Rotary drilling.

OR

4. What are the different types of drilling used in mine? Explain them briefly.
5. What are different kinds of methods used for drilling? Explain about Percussive - Rotary Drilling

OR

6. What is Hydraulic Prop? Explain about its construction and usage with a sketch?
7. Write systematic support rules for depillaring district in a underground coal mine.

OR

8. Explain the procedure of permanent lining of shaft during sinking.
9. What is widening of Shaft? How you are going to carry out widening of shaft with a neat sketch?

OR

10. Write briefly about
    a) Widening of shafts
    b) Applications of modern methods of shaft sinking.

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II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2019

Subject: **Probability and Statistics**

Branch: **Common to ME, CSE, IT & MINING**

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

PART – A

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

1. Define Probability density function

2. Write the finite population correction factor.

3. If arrival rate is 3 per hour service rate is 5 per hour then find traffic intensity.

4. Define markov chain.

5. Write Rank Correlation formula.

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

1. If X and Y are two discrete random variables, then prove that $E(X+Y) = E(X) + E(Y)$ provided $E(X)$ $E(Y)$ exist.

2. If $f(x) = kxe^{-\lambda x}$, $\lambda > 0$, $x > 0$

         $= 0$, otherwise find K

3. Write regression lines for three variables.

4. Define the statistically independence of two jointly distributed random variables.

5. What is the value of correction factor if n=5 and N=200.

6. Define null hypothesis and alternative hypothesis.

7. Describe M/M/1 Models.

8. Write the relations between Lq, Ls, Wq, and Ws in (M/M/1) : (∞/FIFO) model.

9. Write any two classifications of Markov chain.

10. Is the matrix $\begin{bmatrix} \frac{1}{2} & -\frac{1}{2} \\ \frac{1}{4} & \frac{3}{4} \end{bmatrix}$ stochastic?

PART-B

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

1. Fit a binomial distribution to the following data

X	2	4	6	8	10
f	1	4	6	4	1

OR

2. Fit a poisson distribution to the following data

X	0	1	2	3	4	5
f	142	156	69	27	5	1

3. In a partially destroyed laboratory data, only the equations giving the two lines of regression are available and are 7x - 16y + 9 = 0 and 5y - 4x-3 = 0. Calculate the coefficient of correlation and the means of X and Y.

OR

4. Calculate Karl Pearson's correlation co-efficient for the following data.

x	38	45	46	38	35	38	46	32	36	38
y	28	34	38	34	36	26	28	29	25	36

5. Pumpkins were grown under two experimental conditions. Two random samples of 11 and 9 pumpkins, show the Sample standard deviations of their weights as 0.8 and 0.5 respectively. Assuming that the weight distribution is normal, test hypothesis that the true variances are equal.

OR

6. A sample of 100 electric bulbs produced by manufacturer A showed a man life time of 1190 hours and a standard deviation of 90 hours. A sample of 75 bulbs produced by manufacturer B showed a mean life time of 1230 hours with a standard deviation 120 hours. Is there a significant difference between the mean life time of two brands at a significance level of 1)0.05 (ii) 0.01

7. Aone person barber shop has six chairs to accommodate people waiting for haircut. Assume that customers who arrive when all the six chairs are full leave without entering the shop. Customers arrive at the average rate of 3 per hour and spend an average of 15 minutes for service. Find
   a) The probability that a customer can get directly in to the barber chair upon arrival.
   b) Expected number of customers waiting for a haircut.
   c) Effective arrival rate.

OR

8. A car park contains 5 cars. The arrival of cars is poisson with a mean rate of 10 per hour. The length of time each car spends in the car park has negative exponential distribution with mean 2 hours. How many cars are in the car park on average and what is the probability of newly arriving customer finding the car park full and having to park his car elsewhere?

9. A market survey is made on two brands of breakfast foods A &B .Every time a customer purchases, he may buy the same brand or switch to another brand. The transition matrix is given below

TO

		A	B
	A	0.8	0.2
From	B	0.6	0.4

At present, it is estimated that 60% of the people buy brand A and 40% buy brand B. Determine the market shares of brand A and brand B in the steady state.

OR

10. a) Define the types of stochastic process with an example

   b) The transition probability matrix of a markov chain is given by $\begin{bmatrix} 0.3 & 0.7 & 0 \\ 0.1 & 0.4 & 0.5 \\ 0 & 0.2 & 0.8 \end{bmatrix}$ is this matrix irreducible?

   c) Define regular matrix with an example

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II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2019

Subject: **Environmental Studies**

Branch: **MINING**

Time: 3 hours   Max. Marks: 75

PART – A

I.   Answer **ALL** questions of the following   5x1Mark=5 Marks
1. What is estuary?
2. What is insitu conservation of biodiversity?
3. Define BOD
4. Thickness or ozone layer is measured in which units?
5. What is meant by urban sprawl?

II.   Answer **ALL** questions of the following   10x2Marks=20 Marks
1. Discuss the role of decomposers in an ecosystem.
2. What are the biotic and abiotic components of an ecosystem?
3. Discuss the role of humans on landslide occurrence.
4. Give a brief account on renewable energy sources.
5. What are the causes of soil pollution?
6. Define radioactivity and write about the sources of radioactivity.
7. Write a brief note on rain water harvesting
8. What is the significance of greenbelt development?
9. Crazy consumerism is a threat to sustainability. Explain
10. What is meant by sustainable development? Why it is necessary

PART-B
Answer **ALL** questions of the following   5x10 Marks= 50Marks
1. What are the Ecological pyramids? Explain why some of these pyramids are upright while others are inverted in different ecosystems.

OR

2. Define Ecosystems. Explain the structure and function of aquatic ecosystems.

3. Briefly discuss growing energy needs and give an account of renewable energy resources in detail.

OR

4. Solar energy is leading alternative energy source. Explain in detail.

5. Explain the Primary and Secondary Waste water treatment techniques with a neat labeled diagram?

OR

6. What are the sources and effects of Air pollutants? Explain in detail.

7. Write the importance of International conventions/Protocols & explain various types of conventions?

OR

8. Explain Environmental Impact Statement, Environmental Management plan (EMP).

9. Explain the concept of sustainable development. Give an account on Threats to Sustainability.

OR

10. Give brief account on   a) Role of IT in Environment
    b) What is the difference between human centric and eco centric thinking?