

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 II SEMESTER REGULAR END EXAMINATIONS, MAY-2018**Subject: Mine Systems Engineering

Branch: MINING

Time: 3 hours

Max. Marks: 60

PART – A

Answer ALL questions of the following

5x2Mark=10 Marks

1. List any three approaches used with transportation problem for determining starting solution.
2. Write the minimax and maximin principle.
3. Give the formula for probability of 'n' units in the system under single server, first come first serve discipline.
4. If the average inventory is 250 units and the maximum inventory is 300 units, then find the safety stock.
5. Write applications of inventory in mining.

PART-B

Answer any FIVE Questions of the following

5x10 Marks= 50Marks

1. Consider the following transportation problem involving 3 sources and 4 destinations. The cell entries represent the cost of transportation per unit

		Destinations				Supply
		1	2	3	4	
Source	1	3	1	7	4	300
	2	2	6	5	9	400
	3	8	3	3	2	500
	Demand	250	350	400	200	

Obtain the initial feasible solution using Vogel's approximation method.

[10M]

2. A readymade garments manufacturer has to process 7 items through two stages of production namely cutting and sewing. The time taken for each of these at the different stages is given below in appropriate units.

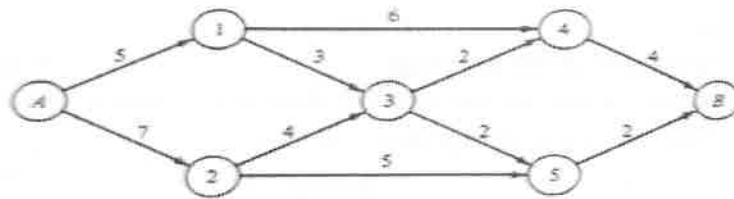
Item	1	2	3	4	5	6	7
Process Time for Cutting	5	7	3	4	6	7	12
Process time for Sewing	2	6	7	5	9	5	8

- a) Find an order in which these items are to be processed through these stages so as to minimize the total processing time. [5M]

- b) Suppose a third stage of production is added namely pressing and packing with processing times as follows, find the order in which these seven items are to be processed so as to minimize the time taken to process all the times through all the three stages. [5M]

Item	1	2	3	4	5	6	7
Process Time for Pressing and Packing	5	7	3	4	6	7	12

3. In a railway yard goods train arrived at a rate of 30 trains per day assuming that the inter arrival time follows an exponential distribution and service time distribution is also exponential with an average of 36 minutes. Calculate i) Average number of trains in queue ii) Average number of trains in system iii) Probability that the number of trains in system exceeds 10. [10M]
4. An automobile company uses 6000 pistons per year. The company can manufacture the pistons at the rate of 36000 units per year with a set-up cost of Rs.2000. The cost of holding inventory per year is estimated to be Rs.8/- per unit and unit cost is Rs.40. If the company has a provision to allow shortage at the cost of Rs.20 per unit per year, find a) Optimal lot size b) No. of shortages c) Manufacturing time d) Time between set ups e) also find total cost (including material cost). [10M]
5. The network given in figure gives different routes for reaching city B from city A passing through a number of other cities. The lengths of the individual routes are shown on arrows. It is required to determine the shortest route from A to B. Formulate the problem as a dynamic programming model. Explicitly define the stages, states and return function; then find the optimal solution. [10M]



6. a) Define Assignment Problem. Explain the procedure for Hungarian Method. [5M]
 b) Solve the following game and determine the value of the game: [5M]

	B	
	4	-4
A	-4	4

7. a) Write a short note on different queuing models. [5M]
 b) the demand for an item in a company is 48,000 units per year and the company can produce the item at a rate of 5,000 per month. The cost of one setup is Rs. 600 and holding cost of 1 unit per month is 15 paise. Determine the optimum manufacturing quantity and the number of shortages. Also determine the manufacturing time and the time between the setup. [5M]
8. Answer any TWO Questions of the following 2x5 Marks= 10Marks
- a) Explain the concept of dynamic programming.
 b) Explain the need for maintaining inventory in an organization.
 c) What is queue? Give an example and explain the basic elements of queues.

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Gundlupochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad**III B.TECH II SEMESTER REGULAR END EXAMINATIONS, MAY-2018**Subject: Rock Mechanics

Branch: MINING

Time: 3 hours

Max. Marks: 60

PART-A

Answer ALL Questions of the following

5x2M=10M

1. What is permeability of a rock mass?
2. Name the different modes of rock failure.
3. Write down different causes of subsidence.
4. What are the factors that influence the stability of slopes in open cast mines?
5. What is the scope and limitations of continuous models in Rock Mechanics?

PART-B

Answer any FIVE Questions of the following

5x10M=50M

1. Briefly explain the Elasto-plastic stress-strain model and Visco-elastic stress-strain model. [10M]
2. Explain mohr'scolumb failure theory with required sketches. [10M]
3. What are the factors influencing subsidence? Explain each in detail, with suitable examples. [10M]
4. How compressive strength and tensile strength are determined in laboratory? [10M]
5. What are the numerical methods used in geomechanics? Briefly explain each method with their applicability. [10M]
6. a) Explain mechanical properties of rock. [5M]
b) How rock support density is determined? [5M]
7. a) Explain the mechanics of surface subsidence with neat sketch. [5M]
b) Write short notes on Brazilian test. [5M]
8. Write short notes on TWO of the following 2 x 5M= 10M
 - a) Elastic behavior
 - b) In-situ deformation of rock
 - c) Management of subsidence

The following information is provided for the purpose of illustrating the format of the data to be submitted to the system. The actual data submitted will be in the form of a text file.

The data is organized into columns as follows:

Column Name

Description

Column 1

Year

Column 2

Column 3

Percentage of the population

These are the columns of the data file

and the following are the column headers

Year, Percentage of the population

The data is organized into columns as follows:

Column Name, Description

Year

Column 1

Percentage of the population

The data is organized into columns as follows:

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Year

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Percentage of the population

Column 1

Percentage of the population

Column 2

Percentage of the population

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Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

III B.TECH II SEMESTER REGULAR END EXAMINATIONS, MAY-2018Subject: Mine Surveying-II

Branch: Mining

Time: 3 hours

Max. Marks: 60

PART-A

Answer ALL questions of the following

5 x 2 M=10 M

1. Name different systems of Tacheometric surveying?
2. Explain the principle of photogrammetry?
3. Write down the difference between GIS and RS.
4. Explain briefly the precautions to be observed while using Total station?
5. State the difference between Tellurometer and Geodimeter.

PART-B

Answer any FIVE questions of the following

5 x 10 M=50 M

1. A simple circular curve is to have a radius of 573 m .the tangents intersect at chainage 1060 m and the angle of intersection is 120 deg. Find,
 - Tangent Distance.
 - Chainage at beginning and end of the curve.
 - Length of the long chord.
 - Degree of the curve.
 - Number of full and sub chords.

[10M]

2. The following observations of three angles A, B and C were taken at one station :

$A = 75^{\circ} 32' 46''.3$	weight	3
$B = 55^{\circ} 09' 53''.2$	weight	2
$C = 108^{\circ} 09' 28''.8$	weight	2
$A+B = 130^{\circ} 42' 41''.6$	weight	2
$B+C = 163^{\circ} 19' 22''.5$	weight	1
$A+B+C = 238^{\circ} 52' 09''.8$	weight	1

Determine the most probable value of each angle?

[10M]

3. (a) Describe the procedure for measurement of depth of mine shaft with neat sketch. [5M]
- (b) The centre line of a tunnel is represented by two plumb lines P and Q is 4 meters apart, hanging vertically in a shaft, the whole circle bearing of the line PQ being $80^{\circ} 40' 15''$. A theodolite is set up underground at a point R distance 3.902 meter and roughly east of the nearer plumb line Q and the observed value of the angle PQR is found to be $16' 12''$. Using Weisbach triangle methods calculate the bearing of the line PR and the perpendicular distance of R from the centre line of the tunnel.

[5M]

4. a) Explain about the integration of GIS and RS in surveying. [5M]
b) Write down different types of surveying is practiced by using Total Station. [5M]
5. a) Write short notes on GIS Softwares [5M]
b) Write short notes on Mapping of site by Total Station. [5M]
6. Write short notes on: a) Rankine method of curve ranging. [5M]
b) Longitude and Latitude. [5M]
7. a) Describe the method of correlation by direct traversing? [5M]
b) Explain the term Scale and Resolution? [5M]
8. **Write short notes on any TWO of the following** **2*5 =10M**
a) Geographical information system b) Total station c) Terrestrial Photogrammetry.

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Gundlupochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajiri (Dist), Hyderabad**III B.TECH II SEMESTER REGULAR END EXAMINATIONS, MAY-2018**Subject: Mine Hazards and Rescue

Branch: Mining

Time: 3 hours

Max. Marks: 60

PART-A

Answer ALL questions of the following

5 x 2 M=10 M

1. Which places in a mine likely to develop spontaneous combustion?
2. List out the advanced methods of firefighting. State the principle fire-fighting with high expansion foam
3. How coal dust becomes explosive in nature?
4. What are the limits of noise levels in surface mines as per mining law?
5. What is the minimum equipment to be kept at the surface of a mine where no rescue room is located close to mine entrance?

PART-B

Answer any FIVE questions of the following

5 x 10 M=50 M

1. Explain briefly the basic causes of mine fire? What precautions should be taken on surface to prevent fires underground? [10M]
2. Describe the equipment and organization for firefighting in a mine. [10M]
3. Explain the mechanism of coal dust explosion. What is air born dust? [10M]
4. What damage is caused by excessive noise at workplace in the mine? Explain different measures to reduce noise at the workplaces? [10M]
5. Differentiate between the standards of illumination in open cast mine and underground mine and also state the reasons. [10M]
6. a) Classify the fire based on Indian standard of fire classification. What are concepts of using foam based extinguisher? [5M]
b) Explain the effect of firedamp explosion in mine. [5M]
7. a) What the different techniques to control mine dust? Explain in brief. [5M]
b) What is dewatering of water-logged working? [5M]
8. Answer Any TWO questions of the following 2 x 5 M=10 M
Write short note on: (a) Rescue apparatus b) Mine hazards c) Ignition of fire damp

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III B.TECH II SEMESTER REGULAR END EXAMINATIONS, MAY-2018Subject: Mineral Economics

Branch: MINING

Time: 3 hours

Max. Marks: 60

PART – A

Answer ALL questions of the following

5x2Mark=10 Marks

1. Explain briefly the role of minerals in international economy
2. Define strategic mineral with examples as far India is concerned.
3. Define capital structure of a company.
4. Define feasibility report (FR) and detailed project report (DPR).
5. What is meant by reclamation?

PART-B

Answer any FIVE Questions of the following

5x10 Marks= 50Marks

1. Describe in brief the economic characteristic of Indian mineral industries in brief. [10M]
2. Explain in detail about coal and limestone resources in India, giving their need, deficiencies and purposes. [10M]
3. What are the various methods of redemption of capital? Explain them in detail. [10M]
4. What are the factors that influence mine valuation? Explain them in detail. [10M]
5. What are the factors to be considered for project planning? Explain each in detail, with suitable examples. [10M]
6. a) Write short notes on Flow chart of stages of mine planning [5M]
b) Write in detail about minerals in which India is deficient in supply position. [5M]
7. a) Explain briefly balance sheet with standard format. [5M]
b) Write short notes on Depreciation. [5M]
8. **Answer any TWO Questions of the following** 2X5M=10M
Write short notes on:
 - a) Project planning and project valuation [5M]
 - b) Gold processing unit [5M]
 - c) Different types of reports used in mines. [5M]

Section 1: Introduction
Section 2: Methodology
Section 3: Results
Section 4: Discussion
Section 5: Conclusion

Abstract
1.1 Background
1.2 Objectives
1.3 Scope
1.4 Organization of the Paper

2.1 Data Collection
2.2 Data Analysis
2.3 Statistical Methods
2.4 Software Used

3.1 Descriptive Statistics
3.2 Inferential Statistics
3.3 Hypothesis Testing
3.4 Regression Analysis
3.5 Correlation Analysis

4.1 Interpretation of Results
4.2 Implications
4.3 Limitations
4.4 Future Research
5.1 Summary
5.2 Final Thoughts

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Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad**III B.TECH II SEMESTER REGULAR END EXAMINATIONS, MAY-2018**Subject: Technical Communication and Presentation SkillsBranch: **Common to CE, ME & MINING**

Time: 3 hours

Max. Marks: 60

PART-A

Answer ALL Questions of the following

5x2M=10M

1. Give meanings of the following words: i. Enterprise ii. Monitor
2. Prepare a memo to issue to your subordinate on his irregularity to office.
3. Differentiate between a 'summary' and an 'abstract.'
4. Explain the importance of oral presentation in professional life.
5. Write some important tips for note-making.

PART-B

Answer any FIVE Questions of the following

5x10M=50M

1. a) List out the phonemic vowels with examples [5M]
- b) Write the phonemic consonants in the following word
 - i) Psychology [2M]
 - c) Suggest ways to improve Technical vocabulary. [3M]
2. Discuss the differences and similarities between circular writing and memo writing. [10M]
3. Enumerate on the chief characteristics of a good report. [10M]
4. What is presentation? Explain the methods of delivery-Memorising, Reading, and Outlining. [10M]
5. a) Elaborate on the various Reading strategies employed in Reading Comprehension. [5M]
- b) Suggest the various ways of improving reading skills. [5M]
6. a) Why should we give a special attention to English pronunciation? [5M]
- b) What are the major hindrances in Technical writing? [5M]
7. a) Explain the importance of 'an Abstract' in report writing. [5M]
- b) Imagine that you are asked to make a presentation on the topic 'Social Networking'. Write a gist of the topic, which reflects your Preparation for the Presentation. [5M]
8. Answer any TWO of the following 2x5M=10M
 1. Diphthongs
 - b) Qualitative method of writing
 - c) Report on Demonetization

