Code No: RT32261 **R13** SET - 1

III B. Tech II Semester Regular/Supplementary Examinations, April -2018

MINE SYSTEMS ENGINEERING

(Mining Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1 a) What are the advantages and limitations of L.P Models? [3M]
b) What is MODI method? [4M]
c) What is replacement? [3M]
d) What is game theory? [4M]
e) Define the term Inventory? [4M]
f) What is simulation? [4M]

PART -B

2 a) What is operations research models? [4M]
b) Solve Graphically: [8M]
Maximise $Z= 3x_1+2x_2$
Sub.to $-2x_1 + 3x_2 \leq 36$
$3x_1+ 2x_2 \geq 24$
$x_1, x_2 \geq 0$.
c) What do you understand by a Linear programming problem? [4M]

3 a) What do you mean by feasible solution and basic feasible solution of transportation problem? [3M]
b) The cost table of an assignment problem is as shown. Find out Optimal assignment would result in the cost unit. [8M]

		COAL FACE 1	2	3	4
LHD	1	15	10	20	30
	2	10	30	40	15
	3	30	20	40	15
	4	20	25	10	15

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c) Find the sequence that minimizes the total elapsed time required to complete the following tasks: [5M]

Tasks	A	B	C	D	E	F	G	H	I
Time on I machine	2	5	4	9	6	8	7	5	4
Time on II machine	6	8	7	4	3	9	3	8	11

4 a) Describe some important replacement situations and replacement policies? [8M]

b) Explain the method of obtaining an optimum solution to a 3-machine n job problem under the conditions to be stated. [8M]

5 a) Explain the Principle of Dominance? [8M]

b) Describe the role of "Theory of games " for scientific decision making? [8M]

6 a) What are the objectives of inventory control? [8M]

b) What do you understand by a waiting line model? [8M]

7 a) What is the difference between an initial value problem and a final value problem? [8M]

b) How many state variable are to be considered if an LP problem with *n* variables and *m* constraints is to be solved as a dynamic programming problem? [8M]

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