



CBCS SCHEME

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15MN751

Seventh Semester B.E. Degree Examination, Jan./Feb. 2021

Mine System Engineering

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Define System Engineering. Explain steps involved in Operation Research. (08 Marks)
b. Explain Maximin criterion with example. (08 Marks)

OR

- 2 a. State and explain General formulation of Lpp. (08 Marks)
b. Solve by Graphical method
Max. $Z = 0.4x_1 + 0.3x_2$
Subject to $x_1 + x_2 \leq 800$
 $x_1 \leq 300$
 $x_2 \leq 650$
 $2x_1 + x_2 \leq 1000$
 $x_1, x_2 \geq 0$. (08 Marks)

Module-2

- 3 a. Solve by Simplex method.
Max. $Z = 3x_1 + 2x_2$
Subject to $x_1 + x_2 \leq 4$
 $x_1 - x_2 \leq 2$
 $x_1, x_2 \geq 0$. (08 Marks)
b. Explain Canonical and standard form of Lpp with mathematical representation. (08 Marks)

OR

- 4 a. Explain significance of MIS in controlling and managing mining activities. (08 Marks)
b. Explain deterministic model of Inventory. (08 Marks)

Module-3

- 5 a. Find Initial feasible solution by LCM and VAM.

	P	Q	R	Supply
A	5	7	8	70
B	4	4	6	30
C	6	7	7	50
Demand	65	42	43	150

- b. Explain steps involved in optimality test for transportation problem. (08 Marks)

OR

- 6 a. Differentiate between Transportation & Assignment problem. (08 Marks)
 b. Solve the travelling salesman problem and find the route with minimum distance. (08 Marks)

	A	B	C	D	E
A	-	4	7	3	4
B	4	-	6	3	4
C	7	6	-	7	5
D	3	3	7	-	7
E	4	4	5	7	-

Module-4

- 7 a. Explain steps involved in PERT / CPM technique and state the application of PERT / CPM. (08 Marks)
 b. Differentiate between PERT / CPM. (08 Marks)

OR

- 8 a. Draw Network diagram for the given precedence table (08 Marks)

i)

A	B	C	D	E	F	G	H
-	A	A	B	B, C	E	D, F	G

ii)

A	B	C	D	E	F	G
-	A	A	B	B	C, D	E, F

- b. Define the following terms : i) Activity ii) Event iii) Slack iv) Network. (08 Marks)

Module-5

- 9 a. List the characteristics of Queuing system and explain any two. (08 Marks)
 b. Classify the Queuing Model. (08 Marks)

OR

- 10 a. What are the characteristics of Game theory? (06 Marks)
 b. Define the following terms : (10 Marks)
 i) Sum of gain or loss.
 ii) Strategy.
 iii) Mixed strategy.
 iv) Payoff matrix.
 v) Saddle point.

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