C 61125

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Name.....

Reg. No.....

SECOND SEMESTER M.B.A. DEGREE EXAMINATION, MAY/JUNE 2019

(CUCSS)

M.B.A.

BUS 2C 15—MANAGEMENT SCIENCE

(2013 Admissions)

Time : Three Hours

Maximum : 36 Weightage

Part A

Answer the following.
Each question carries 1 *weightage.*

1. What is shadow pricing ?
2. What is pay off table ?
3. What is crashing ?
4. State any *two* limitations of simulation.
5. What are the uses of decision tree ?
6. Define sensitivity analysis.

(6 × 1 = 6 weightage)

Part B

Answer any **six** *of the following.*
Each question carries 3 *weightage.*

7. Write the advantages of LPP.
8. What do we mean by 'Duality' ? Write some important features of 'Primal and Dual' problem.
9. Explain decision under uncertainty and risk.
10. Explain the applications of transportation problem in business.
11. Explain the assumptions of queuing theory.

Turn over

12. Solve the transportation problem for minimization :

		Destinations			
		1	2	3	*Capacity*
Sources	1	2	2	3	10
	2	4	1	2	15
	3	1	3	1	40
	Demand	20	15	30	65

13. Use the graphical method to solve the following LP problem.

Minimize $Z = 20X_1 + 10X_2$

subject to the constraints,

$$X_1 + 2X_2 \leq 40$$

$$3X_1 + X_2 \geq 30$$

$$4X_1 + 3X_2 \geq 60$$

And $X_1, X_2 \geq 0$

14. A firm owner is seriously considering drilling a farm well. In the past, only 70 % of wells drilled were successful at 200 feet of depth in the area. Moreover, on finding no water at 200 ft., some persons drilled it further up to 250 feet but only 20 % struck water at 250 ft. The prevailing cost of drilling is Rs. 50 per foot. The farm owner has estimated that in case he does not get his own wells, he will have to pay Rs 15,000 over the next 10 years, in present value (PV) term, to buy water from the neighbour. The following decisions can be optimal, (i) Do not drill any well ; (ii) drill up to 200 ft. and (iii) if no water is found at 200 ft. drill further up to 250 ft.

Draw an appropriate decision tree and determine the farm owner's strategy Under EMV approach.

(6 × 3 = 18 weightage)

Part C

Answer any **two** *of the following.*
Each question carries 6 *weightage.*

15. Using Hungarian Method, solve the following assignment problem to minimize the total cost represented as elements in the matrix (cost in thousand rupees)

	Contractor			
Building	1	2	3	4
A	48	48	50	44
B	56	60	60	68
C	96	94	90	85
D	42	44	54	46

16. Explain monte carlo simulation in detail.

17. A project schedule has following characteristics.

Activity	*Time*	*Activity*	*Time*
1-2	4	5-6	4
1-3	1	5-7	8
2-4	1	6-8	1
3-4	1	7-8	2
3-5	6	8-10	5
4-9	5	9-10	7

- Construct network diagram.
- Find EST, LST, EFT, and LFT values of all activities.
- Find critical path and project duration.
- Find total of each activity.

(2 × 6 = 12 weightage)