

MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR
SEMEISTER END THEORY EXAMINATION, B. TECH. (D.T.) DEGREE COURSE 2018-19

Semester : V (V Dean)	Academic Year : 2018-2019
Course No. : DBM-507	Course Title : ICT in dairy industry & operation research
Credits : 2+2+4	Total Marks : 50
Day & Date : Monday, 14/01/2019	Time : 11.00 to 13.00 Hrs.

- Note :**
- 1) All questions from **Section 'A'** are compulsory.
 - 2) Solve **Any Three** questions from **Section 'B'**.
 - 3) Draw neat and well labelled diagram wherever necessary.

SECTION – 'A'

- Q. 1 A) Choose the most appropriate answer from the options given below. (05)
- i) Operation Research, which is very powerful tool for
 - a) Research
 - b) Decision Making
 - c) Operations
 - d) None of these
 - ii) Assignment problems can be solved by
 - a) Hungarian Method
 - b) Simplex Method
 - c) Least Cost Method
 - d) None of These
 - iii) Operations Research attempts to find the best and solution to a problem.
 - a) Linear Programming technique
 - b) Non-Linear Programming Technique
 - c) Both a) and b)
 - d) None of these
 - iv) The solution to a transportation problem with 'm' rows (supplies) and 'n' columns (destination) is feasible if the number of positive allocations is
 - a) Optimum
 - b) Perfect
 - c) Degenerate
 - d) None of these
 - v) When total supply is equal to total demand in a transportation problem, the problem is said to be
 - a) Balanced
 - b) Unbalanced
 - c) Degenerate
 - d) None of these

- B) Define the following. (05)
- i) Deterministic Models
 - ii) Linear Programming
 - iii) Merge Event
 - iv) Inventory Control
 - v) Critical Path Method

- Q. 2 A) Give reasons for the following. (05)
- i) In LCM, find out the least element from matrix.
 - ii) When we called unbalanced transportation problem.
 - iii) Need to add dummy row in Assignment problem.
 - iv) Need for ICT in dairy industry.
 - v) Need for dummy activity in CPM.

(P.T.O.)

- B) State whether True or False. If False, rewrite the statement after making necessary corrections. (05)
- The Innovative science of Operations Research was discovered during world war II.
 - In NWCM, supply or demand fulfill from upper left corner of Transportation problem.
 - Minimization or maximization of quantity is constraints of operation research.
 - To balance supply and demand in transportation problem, added the penalty.
 - There is at most one critical path in a project network.

SECTION – 'B'

- Q. 3 a) Explain the three methods of finding initial basic feasible solution in transportation problem. (05)
- b) Discuss the objectives of Operation Research. (05)
- Q. 4 a) How modeling in Operation Research is helpful in decision making? Discuss. (05)
- b) To get the optimal solution assign machine to job by using Assignment method. (05)

Job \ Machine	A	B	C	D
1	16	14	15	18
2	12	13	16	14
3	14	13	11	12
4	16	18	15	17

- Q. 5 a) Explain LPP with their types. (03)
- b) What is inventory? Explain different types of inventory. (03)
- c) Differentiate between AON & AOA. (04)
- Q. 6 a) Explain the queuing system. (03)
- b) Explain the PERT procedure. (03)
- c) Differentiate between transportation and an assignment problem. (04)
- Q. 7 Find the optimal solution of following transportation problem by VAM (10)

Warehouse \ Factory	W1	W2	W3	W4	Factory Capacity
F1	19	30	50	10	7
F2	70	30	40	60	9
F3	40	8	70	20	18
Warehouse Demand	5	8	7	14	