

MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR
SEMESTER END THEORY EXAMINATION, B.Tech. (D.T.)

Semester	: V(V Dean)	Academic Year	: 2023-2024
Course No.	: DBM-507	Course Title	: ICT in Dairy Industry & Operation Research
Credits	: 2+2=4	Total Marks	: 50
Day & Date	: Friday, 17/05/2024	Time	: 2 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) Operations Research (OR), which is a very powerful tool for
 - a) Research \
 - b) Decision – Making
 - c) Operations
 - d) None of these
 - ii) The term Operations Research was coined in the year
 - a) 1950
 - b) 1940
 - c) 1978
 - d) 1960
 - iii) Operations Research cannot give perfectto problems.
 - a) Answers
 - b) Solution
 - c) Both a) and b)
 - d) Decisions
 - iv) The objective functions and constraints are linear relationship between
 - a) Variables
 - b) Constraints
 - c) Functions
 - d) All of these
 - v) is the mathematician who invented the field of linear programming.
 - a) George B. Dantzig
 - b) Alfard Marshall
 - c) George B. Dante
 - d) A.V. Kantorovich
- B) Define the following terms. (05)
- i) Optimal Solution
 - ii) Feasible Solution
 - iii) Linear Function
 - iv) Slack variable
 - v) Key column
- Q.2 A) Give the full form of following abbreviations. (05)
- i) LPP
 - ii) CPM
 - iii) NWCM
 - iv) VAM
 - v) PERT

(P.T.O.)

- B) State whether True or False. If false, rewrite the statement after making necessary corrections. (05)
- Operational research techniques were applied even during World War II.
 - The transportation problem solving method gives optimal feasible solution.
 - Linear programming has been successfully applied in agriculture and industries.
 - There are seven basic methods to solve LPP problem.
 - Hungarian method is used to solve the transportation problem.

SECTION –‘B’

- Q. 3 A) Explain the scope, applications and limitations of operation research. (05)
 B) Write a short note on History of operation research. (05)
- Q. 4 A) Discuss in detail replacement problem. (05)
 B) What is CPM and PERT? Explain event and activity with their types. (05)
- Q. 5 A) Discuss applications of operation research. (03)
 B) Write characteristics of operations research. (03)
 C) Explain the use of operation research in dairy industry. (04)
- Q. 6 A) Explain the queuing theory in detail. (03)
 B) Write in details the inventory control. (03)
 C) Explain various models of operations research. (04)
- Q. 7 Consider the following assignment problem where three workers W1, W2 and W3 are assigned to 3 jobs J₁, J₂ and J₃. Their estimated costs for each job are given in each cell (10)

	W1	W2	W3
J1	5	10	8
J2	7	12	10
J3	11	10	9
