

MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR
SEMEISTER END THEORY EXAMINATION, B. Tech. Dairy Technology 2019-20

Semester	: VII (New Syllabus)	Academic Year	: 2019-2020
Course No.	: ST-702	Course Title	: Operation Research
Credits	: 2+0=2	Total Marks	: 50
Day & Date	: Tuesday, 14.01.2020	Time	: 11.00 to 13.00 Hrs.

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

SECTION - 'A'

Q. 1 A) Choose and indicate the most appropriate answer for the following. (05)

- i) A Dummy activity in project network, which takes
 - a) 1 No.
 - b) Zero
 - c) 1 Hour
 - d) 1 Rupees
- ii) Hungarian method is used to solve
 - a) Assignment Problem
 - b) Transportation Problem
 - c) Project Management
 - d) None of Above
- iii) In transportation problems penalty means
 - a) Difference between two highest cost in row / column
 - b) Difference between two lowest cost in row / column
 - c) Difference between two adjacent cost in row / column
 - d) Difference between the highest and lowest cost in row / column
- iv) In a transportation problem, numbers in each cell indicate
 - a) Transportation cost per unit
 - b) Minimum distance between two destination
 - c) Average distance between two destination
 - d) Maximum distance between two destination
- v) Following is not ordering cost
 - a) Salary of purchase staff
 - b) Material Handling cost
 - c) Purchase follow up expenses
 - d) Cost of Bills payment

B) Elaborate the following. (05)

- i) PERT
- ii) EOQ
- iii) AON
- iv) NWCM
- v) LPP

Q. 2 A) Write the purpose behind using following OR application. (05)

- i) Assignment Technique
- ii) Transportation Problem
- iii) LPP
- iv) Inventory Control
- v) Project Management/ PERT

- B) State True or False, If false rewrite the statement after making necessary corrections. (05)
- Row/ Column deduction process used to solve LP problem.
 - In balanced assignment problem row must be less than column
 - In burst event more than one activity comes and joins an event
 - Operation research is very powerful tool for decision making.
 - In project networking diagram, the path which takes longest time for its completion is called Critical path in a project network.

SECTION – 'B'

- Q. 3 A project consists of following activities. Draw Networking and find Critical path and project completion time. (06)

Activity	Predecessor	Durations in days
A	-	1
B	A	1
C	A	1
D	B	2
E	C,D	3
F	D,E	3
G	F	1
H	F,G	2

- Q. 4 Solve the following transportation problem by North west corner method. The transportation cost matrix is given below. (06)

	E	F	G	H	Supply
A	25	35	36	60	15
B	55	30	45	38	6
C	40	50	26	65	14
D	60	40	66	27	11
Demand	10	12	15	9	46

- Q. 5 Explain the various models in operation research. (06)
- Q. 6 A) Explain the characteristics of operation research. (03)
 B) Explain Inventory Control. (03)
- Q. 7 A) Write the steps of "Critical Path Method". (03)
 B) Differentiate PERT & CPM. (03)
- Q. 8 A) Explain the Penalty in Transportation problem. (02)
 B) Define Saddle point. (02)
 C) What is optimization? (02)
- Q. 9 A) Enlist steps involved to solving Least count method. (02)
 B) Differentiate between AON and AOA. (04)
