MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
MBA II Year I Semester (R16) Supplementary End Semester Examinations – Mar 2021
OPERATIONS RESEARCH

Time: 3Hrs   Max Marks: 50

Attempt all the questions. All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either Part A or Part B only. Q.no 6 which is a case study is compulsory.

Q.1(A)   A company has three operational departments with capacity to produce three   8 M
different types of cloths yielding a profit of Rs.2, Rs. 4 and Rs.3 per meter
respectively. One meter of suiting requires 3 minutes in weaving, 2 minutes in
processing and 1 minute in packing. One meter of woolen requires 3 minutes in
each department. In a week, total run time of each department is 60, 40 and 80
hours for weaving, processing packing respectively. Solve the above as a linear
programming problem by graphical method.

<p align="center">OR</p>

Q.1(B)   Discuss the scope of Operations research in detail.   8 M

Q.2(A)   Solve the following Transportation problem: 8 M

	D_1	D_2	D_3	D_4	D_5	Supply
O_1	7	7	10	5	11	45
O_2	4	3	8	6	13	90
O_3	9	8	6	7	5	95
O_4	12	13	10	6	3	75
O_5	5	4	5	6	12	105
Demand	20	80	50	75	85	

<p align="center">OR</p>

Q.2(B)   Consider the problem of assignment five jobs to five persons. The assignment costs   8 M
are given below. Determine the optimal assignment schedule:

$$
\begin{array}{c}
 & 1 \quad 2 \quad 3 \quad 4 \quad 5 \\
\begin{array}{c} A \\ B \\ C \\ D \\ E \end{array}
\begin{bmatrix}
8 & 4 & 2 & 6 & 1 \\
0 & 9 & 5 & 5 & 4 \\
3 & 8 & 9 & 2 & 6 \\
4 & 3 & 1 & 0 & 3 \\
9 & 5 & 8 & 9 & 5
\end{bmatrix}
\end{array}
$$

Q.3(A)   There are seven jobs, each of which has to go through the machine A and B in   8 M
the order AB. Processing times in hours are given below:

Job	1	2	3	4	5	6	7
Machine A	3	12	15	6	10	11	9
Machine B	8	10	10	6	12	1	3

Determine a sequence of these jobs that will minimize the total elapsed time T.

Q.3(B) Solve the following game using Dominance property: **8 M**

Player B

Player A $\begin{bmatrix} 3 & 5 & 4 & 2 \\ 5 & 6 & 2 & 4 \\ 2 & 1 & 4 & 0 \\ 3 & 3 & 5 & 2 \end{bmatrix}$

Q.4(A) A truck owner finds from his past records that the maintenance costs per year of a   **8 M**
truck whose purchase price is Rs.8,000, are as given below:

Year	1	2	3	4	5	6	7	8
Running cost (Rs.)	1,000	1,300	1,700	2,200	2,900	3,800	4,800	6,000
Resale value (Rs.)	4,000	2,000	1,200	600	500	400	400	400

Determine at which time it is profitable to replace the truck.

OR

Q.4(B) A confectioner sells confectionery items. Past data of demand per week in '00 kgs   **8 M**
with frequency are

Demand	0	5	10	15	20	25
Frequency	2	11	8	21	5	3

Generate the demand for next 10 weeks. Also find out the average demand per
week.

Q.5(A) The following table gives the activities of construction project and duration: **8 M**

Activity	1-2	1-3	2-3	2-4	3-4	4-5
Duration (days)	20	25	10	12	6	10

Draw the network for the project. Find the critical path and project duration.

OR

Q.5(B) Define Queuing theory. Discuss the components of queuing structure systems.   **8 M**

Q.6   **Case Study**   **10 M**

Solve the following travelling salesman problem:

$$\begin{array}{c c c c c c} & 1 & 2 & 3 & 4 & 5 \\ 1 & - & 10 & 25 & 25 & 10 \\ 2 & 1 & - & 10 & 15 & 2 \\ 3 & 8 & 9 & - & 20 & 10 \\ 4 & 14 & 10 & 24 & - & 15 \\ 5 & 10 & 8 & 25 & 27 & - \end{array}$$

END

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MBA II Year I Semester (R16) Supplementary End Semester Examinations – MARCH 2021

CUSTOMER RELATIONSHIP MANAGEMENT

Time: 3Hrs

Max Marks: 50

Attempt all the questions. All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either Part A or Part B only. Q.no 6 which is a case study is compulsory.

Q.1(A)	Explain the important ways to deploy CRM. List down the advantages in advantages in deploying CRM.	8M
	OR	
Q.1(B)	Explain the phases in developing a CRM strategy using an illustration.	8M
Q.2(A)	What is Collaborative CRM? Explain in detail about the customer behavior in relationship perspective.	8M
	OR	
Q.2(B)	What is customer life time value? How customer profit analysis help to understand customers?	8M
Q.3(A)	Briefly discuss about the CRM process.	8M
	OR	
Q.3(B)	Explain the different CRM models.	8M
Q.4(A)	Describe the role of CRM managers.	8M
	OR	
Q.4(B)	Examine the issues involved in implementing strategic CRM.	8M
Q.5(A)	What are the functional and technical requirements for CRM solutions? Explain.	8M
	OR	
Q.5(B)	Explain the changing trends in CRM. How it is effectively works in retaining customer base?	8M
Q.6	**Case Study**	10M

A major cellular service provider, AIRTEL, hired the service of synergy marketing, an agency specialized in devising the loyalty programmes, to prepare an innovative customer loyalty programmes. The initiatives sought to improve the customer acquisition and retention rates of the cellular phone customers, in a market of fierce competition. The programme implementation calls for an accurate tracking of the customer behavior using control groups – customers like those in the loyalty

programme who were not offered membership in the programme. By comparing the behavior of the customer in the loyalty programme with those not in the programme, the financial impact of the loyalty programme could be very precisely determined. Since, the programme is not going to be advertised, but informed through the mail to specific customers, a perfect "blind test" of loyalty programme effectiveness can be created in the cellular market.

Questions
1. You have to prepare a communication plan, sample selection, design of the programme and data analysis approach to help synergy marketing.
2. Prepare separate plans for pre-paid and post-paid customers.