

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)**MBA II Year I Semester (R20) Supplementary End Semester Examinations, July - 2023**
OPERATIONS RESEARCH

Time: 3Hrs

Max Marks: 60

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.No	Question	Marks	CO	BL																															
Q.1(A)	Explain the various steps involved in formulation of L.P.P	10M	1	2																															
OR																																			
Q.1(B)	Solve the L.P.P. by Simplex method: $Max.Z = 5x_1 + 3x_2$ Subject to $x_1 + x_2 \leq 2$, $5x_1 + 2x_2 \leq 10$, $3x_1 + 8x_2 \leq 12$, $x_1, x_2 \geq 0$	10M	1	3																															
Q.2(A)	Determine the optimum transportation cost for the following Transportation problem:	10M	2	4																															
<table border="1" style="margin: auto;"><thead><tr><th></th><th>D1</th><th>D2</th><th>D3</th><th>D4</th><th>Availability</th></tr></thead><tbody><tr><th>P1</th><td>20</td><td>22</td><td>17</td><td>4</td><td>120</td></tr><tr><th>P2</th><td>24</td><td>37</td><td>9</td><td>7</td><td>70</td></tr><tr><th>P3</th><td>32</td><td>37</td><td>20</td><td>15</td><td>50</td></tr><tr><th>Requirement</th><td>60</td><td>40</td><td>30</td><td>110</td><td></td></tr></tbody></table>							D1	D2	D3	D4	Availability	P1	20	22	17	4	120	P2	24	37	9	7	70	P3	32	37	20	15	50	Requirement	60	40	30	110	
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OR																																			
Q.2(B)	Solve the following assignment problem using Hungarian Method	10M	2	3																															
<table border="1" style="margin: auto;"><thead><tr><th>Job</th><th>1</th><th>2</th><th>3</th><th>4</th></tr></thead><tbody><tr><th>Person</th><td></td><td></td><td></td><td></td></tr><tr><th>A</th><td>20</td><td>25</td><td>22</td><td>28</td></tr><tr><th>B</th><td>15</td><td>18</td><td>23</td><td>17</td></tr><tr><th>C</th><td>19</td><td>17</td><td>21</td><td>24</td></tr><tr><th>D</th><td>25</td><td>23</td><td>24</td><td>24</td></tr></tbody></table>						Job	1	2	3	4	Person					A	20	25	22	28	B	15	18	23	17	C	19	17	21	24	D	25	23	24	24
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C	19	17	21	24																															
D	25	23	24	24																															
Q.3(A)	Explain the terms i) Two-Person zero-sum games ii) Pay-off matrix iii) Minimax-Maximin principle and iv) Saddle point and value of the game.	10M	3	3																															
OR																																			
Q.3(B)	Evaluate the optimal strategies of player A & B and Determine value of the game by using dominance property.	10M	3	3																															

Player A ↓	Player B		
	B1	B2	B3
A1	1	7	2
A2	6	2	7
A3	5	1	6

- Q.4(A) A fleet owner finds, from his past records, that the cost per year of running vehicle and resale value per year as shown below and whose purchase price is Rs. 7000 10M 4 3

Year	1	2	3	4	5	6	7	8
Running Cost (Rs.)	900	1200	1600	2100	2800	3700	4700	5900
Resale value (Rs.)	4000	2000	1200	600	500	400	400	400

Determine when the vehicle should be replaced.

OR

- Q.4(B) A company manufactures 200 motorcycles per day. Depending upon the availability of raw materials and other conditions, the daily production has been varying from 196 to 204 motorcycles, whose probability distribution is as given below: 10M 4 4

Production per day	196	197	198	199	200	201	202	203	204
Probability	0.05	0.09	0.12	0.14	0.20	0.15	0.11	0.08	0.06

The motorcycles are transported in a specially designed three storeyed lorry that can accommodate only 200 motorcycles. Using the following random numbers: 82, 89, 78, 24, 52, 53, 61, 18, 45, 04, 23, 50, 77, 27, 54, 10

Simulate the process to estimate:

- The average number of motorcycles waiting in the factory.
- The average number of empty spaces on the lorry?

- Q.5(A) In a service department manned by one server, on an average 8 customers arrive every 5 minutes while the server can serve 10 customers in the same time assuming Poisson distribution for arrival and exponential distribution for service rate. Determine: 10M 5 3
- Average number of customers in the system.
 - Average number of customers in the queue.
 - Average time a customer spends in the system.
 - Average time a customer waits before being served.

OR

- Q.5(B) Explain how to determine an optimal sequence for processing of n jobs on two machines using Johnson's procedure. 10M 5 3

- Q.6 **Case Study** 10M 4 5

A small project is composed of seven activities whose time estimates in weeks are given below:

Activity	1-2	1-3	1-4	2-5	3-5	4-6	5-6
Optimistic time	1	1	2	1	2	2	3
Most likely time	1	4	2	1	5	5	6
Pessimistic time	7	7	8	1	14	8	15

Find the critical path. Estimate the probability that the project will be Completed atleast four weeks earlier than expected?

*****END*****

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
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MBA II Year I Semester (R20) Supplementary End Semester Examinations, July - 2023
STRATEGIC MANAGEMENT

Time: 3Hrs

Max Marks: 60

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. No	Question	Marks	CO	BL
Q.1(A)	Discuss the importance of creating sustainable mission statement? While formulating the mission statement for an organization which aspects will you consider?	10M	1	2
OR				
Q.1(B)	Discuss the nature and significance of strategic management.	10M	1	2
Q.2(A)	Discuss the importance GE model by stating its merits and demerits	10M	2	2
OR				
Q.2(B)	Critically evaluate is TOWS matrix?	10M	2	3
Q.3(A)	Briefly explain about the functional level strategies	10M	3	2
OR				
Q.3(B)	Explain the Retrenchment Strategies?	10M	3	2
Q.4(A)	Discuss resource allocation as a tool of strategy and strategic implementation.	10M	4	2
OR				
Q.4(B)	Discuss the role of organization structure in strategic management.	10M	4	3
Q.5(A)	Appraise the functions under strategic surveillance.	10M	5	3
OR				
Q.5(B)	Describe the steps in strategic evaluation and control process	10M	5	2
Q.6	CASE STUDY	10M	5	5
	In March 2001, the McDonald's Corporation's Indian operation was at a critical juncture in its evolution. Over the previous few months, the company had expanded its retail base from Mumbai (10 outlets) and Delhi (14 outlets) to Bangalore (one outlet), Pune (one outlet), Jaipur (one outlet) and the Delhi-Agra highway (one outlet). During 2001, McDonald's had plans to open 15 more outlets with one each in Ludhiana and Ahmedabad and the rest in cities where it already had a presence. By 2003, the company planned to increase the number of outlets to 80 and the cumulative investment in India to more than Rs 10 billion. (The approximate exchange rate in March 2001 was Rs 46.50 = US\$1.) This would represent a threefold increase over the cumulative investment until June 2000 (Rs 3.5 billion). Three other cities (Agra, Baroda and Chandigarh) would also have at least one McDonald's outlet by 2003. The			

Indian venture had been operational for more than four years and had recorded healthy growth but no profits. Commenting on the progress until that point in time, Vikram Bakshi (McDonald's partner in Delhi) said: 'Our growth and expansion in India over the last three years has definitely been very encouraging.' Only a few months previously, Amit Jatia (McDonald's other partner in charge of the Mumbai outlets) had said: 'We are still to recover our investment. You need a very large base and break-even is normally after seven to ten years.' Despite the venture's lack of profits, Jatia also showed his enthusiasm for expansion when he said, 'Having cracked the Indian market, McDonald's is ready to leverage its initial investments in infrastructure to rapidly expand.' Observers were wondering about the appropriateness of McDonald's bold strategic move. Was the additional investment wise, especially in view of the lack of profitability of the existing operations? Since many of the new cities to be entered were less Westernised than Mumbai or Delhi, many observers doubted whether the demand potential would be sufficient to justify the economic operation of outlets. The cost and availability of prime real estate in major Indian cities was another issue. Opening a new outlet required an average investment of Rs 30 million. In Mumbai and Delhi, where prime real estate was expensive, the investments could be higher. Finally, some analysts doubted whether McDonald's could afford to spend big amounts on advertising to create a strong brand-name reputation if its outlet base and customer base remained relatively narrow.

1. What strategies does the organization need to follow in International context?
2. Explain the strength and weakness of McDonald's Corporation in Indian context

*****END*****

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

MBA II Year I Semester (R20) Supplementary End Semester Examinations, July - 2023
SECURITY ANALYSIS AND PORT-FOLIO MANAGEMENT

Time: 3Hrs

Max Marks: 60

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.No	Question	Marks	CO	BL
Q.1(A)	Enumerate the various Speculative investment vehicles for an investor.	10M	1	2
OR				
Q.1(B)	Why are indexes important? Write about NSE & NCDEX.	10M	1	2
Q.2(A)	Write a clear comparison of Systematic versus Non-systematic Risk.	10M	2	2
OR				
Q.2(B)	The following information is given for a corporate bond. Price of the bond at the beginning of the year: Rs. 90, Price of the bond at the end of the year: Rs. 95.40, Interest received for the year: Rs. 13.50. Compute the rate of return.	10M	2	5
Q.3(A)	"Identifying so-called head-and-shoulders patterns can be tricky but profitable" – Explain.	10M	3	5
OR				
Q.3(B)	What are Candlestick Graphs/Charts? How to analyze Candle sticks?	10M	3	5
Q.4(A)	Explain CAPM with a suitable example, how does it benefit investors?	10M	4	2
OR				
Q.4(B)	What is meant by arbitrage pricing theory? How it works explain with its formula.	10M	4	5
Q.5(A)	How to manage an active mutual fund portfolio.	10M	5	2
OR				
Q.5(B)	Discuss the key differences in Jensen and Treynor measures of performance.	10M	5	2
Q.6	CASE STUDY	10M		5

Analyze the case of Portfolio Consisting Wipro & Infosys Securities

The returns of Security of Wipro and Security of Infosys for the past six years are given below:

Year	Security of Wipro Return %	Security of Infosys Return %
2013	9	10
2014	5	-6
2015	3	12
2016	12	9
2017	16	15

Calculate the risk and return of portfolio consisting both where the propo of funds invested in security of Wipro is 80%.

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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

MBA II Year I Semester (R20) Supplementary End Semester Examinations, July - 2023

HR ANALYTICS

Time: 3Hrs

Max Marks: 60

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.No	Question	Marks	CO	BL																																										
Q.1(A)	Why do you think that the evolution of HR analytics is an influential era in HR field? Summarize the applicable areas of HR analytics with its importance?	10M	1	3																																										
OR																																														
Q.1(B)	Based on what you know, how would you explain the importance of HR analytics in emerging technologies?	10M	1	3																																										
Q.2(A)	What is the main idea for the implementation of HR intelligence? Narrate the idea with HR intelligence cycle?	10M	2	1																																										
OR																																														
Q.2(B)	Elaborate the techniques and non-parametric tests in HR Research.	10M	2	3																																										
Q.3(A)	i) How would you use Turnover rate matrix to reduce the turnover rate of an organization? (5M) ii) In Z Ltd. there were 680 employees on the rolls at the beginning of a year and 620 at the end. During the year 30 persons left service. The company has computed its labour turnover rates under flux method is 8%. The number of accessions during the period is. (5M)	10M	3	3																																										
OR																																														
Q.3(B)	The table below shows the hours of relief provided by two analgesic drugs in 12 patients suffering from arthritis. Is there any evidence that one drug provides longer relief than the other?	10M	3	4																																										
	<table border="1"> <thead> <tr> <th>Case</th> <th>Drug A</th> <th>Drug B</th> <th>Case</th> <th>Drug A</th> <th>Drug B</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2.0</td> <td>3.5</td> <td>7</td> <td>14.9</td> <td>16.7</td> </tr> <tr> <td>2</td> <td>3.6</td> <td>5.7</td> <td>8</td> <td>6.6</td> <td>6.0</td> </tr> <tr> <td>3</td> <td>2.6</td> <td>2.9</td> <td>9</td> <td>2.3</td> <td>3.8</td> </tr> <tr> <td>4</td> <td>2.6</td> <td>2.4</td> <td>10</td> <td>2.0</td> <td>4.0</td> </tr> <tr> <td>5</td> <td>7.3</td> <td>9.9</td> <td>11</td> <td>6.8</td> <td>9.1</td> </tr> <tr> <td>6</td> <td>3.4</td> <td>3.3</td> <td>12</td> <td>8.5</td> <td>20.9</td> </tr> </tbody> </table>	Case	Drug A	Drug B	Case	Drug A	Drug B	1	2.0	3.5	7	14.9	16.7	2	3.6	5.7	8	6.6	6.0	3	2.6	2.9	9	2.3	3.8	4	2.6	2.4	10	2.0	4.0	5	7.3	9.9	11	6.8	9.1	6	3.4	3.3	12	8.5	20.9			
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4	2.6	2.4	10	2.0	4.0																																									
5	7.3	9.9	11	6.8	9.1																																									
6	3.4	3.3	12	8.5	20.9																																									
Q.4(A)	What is the main metric to calculate Training ROI? What are the types of metrics in training?	10M	4	3																																										
OR																																														
Q.4(B)	How would you categorize 360-degree appraisal and 180-degree appraisal for measuring the performance of the employees? What are the metrics related with employee performance?	10M	4	3																																										

Q.5(A) What is meant by CTC? Narrate the components of CTC and how it differentiate with gross salary? 10M 5 2

OR

Q.5(B) State in your own words about the organizational effectiveness and the importance of setting goals to reach the long-term organizational goals? 10M 5 2

Q.6 **CASE STUDY** 10M 4 5

A three-facility hospital system was facing a challenge with employee turnover. Statistics showed that almost 50 percent of terminations were employees first year of their employment, a number that was more than 20 percent higher than the national average. The hospital system estimated that termination cost as much as \$2.2 million annually, and that reducing terminations could have a significant impact on its bottom line by eliminating rework inside the hospital's HR department. A problem-solving team was brought together to examine the situation. After deciding this was a top priority for the organization, the team worked on a Six Sigma project to see how they could save the company time, and effort by reducing employee turnover.

1. Summarize the case and provide Title of the case based on the info. Provide the solutions to the problems in the case.

END

Hall Ticket No:

Course Code: 20MBAP433

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)**MBA II Year I Semester (R20) Supplementary End Semester Examinations, July - 2023**
BIG DATA ANALYTICS

Time: 3Hrs

Max Marks: 60

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.No	Question	Marks	CO	BL
Q.1(A)	Describe about Classification.	10M	1	3
OR				
Q.1(B)	Give an overview on Hadoop.	10M	1	3
Q.2(A)	Explain the role of Data Analyst.	10M	2	3
OR				
Q.2(B)	Specify the key roles for successful analytic project.	10M	2	3
Q.3(A)	Elaborate on the working of HDFS.	10M	3	3
OR				
Q.3(B)	Pen down about YARN.	10M	3	3
Q.4(A)	Discuss in detail about Map Reduce API.	10M	4	3
OR				
Q.4(B)	How reading and writing of text data can be done in Hadoop? Explain.	10M	4	3
Q.5(A)	Explain Data Loading.	10M	5	3
OR				
Q.5(B)	Write a case study on sentiment analysis.	10M	5	3
Q.6	Can you imagine a Weather Forecast helped a retail chain in increasing their sales? The weather forecast is not just about the weather. It has much more to offer. A weather channel predicts the impact of weather on their viewers' emotions. The Weather Channel collected the data about the humidity level in the air and the time it will be highest. Explore it how data mining techniques helps the retail chain.	10M	2	5

*****END*****

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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

MBA II Year I Semester (R20) Supplementary End Semester Examinations, July - 2023
PREDICTIVE ANALYSIS AND MODELING

Time: 3Hrs

Max Marks: 60

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.No	Question	Marks	CO	BL
Q.1(A)	How would you classify the types of research? Explain in detail?	10M	1	4
	OR			
Q.1(B)	How would you explain the presentations and structure in academic writing?	10M	1	2
Q.2(A)	Could you narrate the steps in sampling process? What sampling methods will you choose if your research population is unknown?	10M	2	4
	OR			
Q.2(B)	i) What are the threats to Internal validity and external validity? ii) Calculate the sample size if total population(N)=425, Z=2.58, e=0.05 and p=0.5	10M	2	3
Q.3(A)	i)What is the importance of factor analysis in multivariate analysis? ii) Discuss about the importance of cluster analyses in grouping the data?	10M	3	2
	OR			
Q.3(B)	Can you list few important analyses of dependence methods and interdependence methods in detail?	10M	3	4
Q.4(A)	State in your own words about the importance of simple linear regression and multiple linear regression in predictive analysis?	10M	4	4
	OR			
Q.4(B)	Summarize the concepts in multiple linear regression? Why do you think the outliers and coefficient have its importance in regression?	10M	4	2
Q.5(A)	What do you mean by ARIMA model? Is it a predictive model used for time series?	10M	5	2
	OR			
Q.5(B)	What are the key benefits of predictive analysis in organizations? Can you summarize the changes happened due to the rise of predictive analysis in different sectors?	10M	5	2

Q.6

Case Study

The demand for a particular item during the ten months of a year is as given below. The manager is considering how well the exponential smoothing serves as an appropriate technique in forecasting the demand of this item. She is testing three values of the smoothing constant: $\alpha=0.2$, $\alpha=0.5$ and $\alpha=0.8$. You are required to

10M 5 5

- a. Calculate forecasted values using each of the given α values, assuming the initial forecast as 208, and
- b. Calculate MAD for each of these series of estimates and suggest which of them is most appropriate.

MONTH	1	2	3	4	5	6	7	8	9	10
DEMAND	213	201	198	207	220	232	210	217	212	225

END