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## MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

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

### ENTREPRENEURSHIP DEVELOPMENT & PROJECT 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)	Illustrate the role of entrepreneurship in the Indian Economy	10M	1	3
<b>OR</b>				
Q.1(B)	Discuss the role of design thinking and innovation in entrepreneurship?	10M	1	2
Q.2(A)	Define business plan. Briefly explain business planning process.	10M	2	2
<b>OR</b>				
Q.2(B)	Explain about market analysis and why is it important for entrepreneurship.	10M	2	2
Q.3(A)	Explicate agencies in the Entrepreneurship Development in India.	10M	3	2
<b>OR</b>				
Q.3(B)	State the importance of report. How do you write a management feasibility report?	10M	3	2
Q.4(A)	Write a short note on i) Legal requirements of venture ii) Types of Financing	10M	4	2
<b>OR</b>				
Q.4(B)	Venture Capital Funding, and Angel Capitalist are the most popular types of finance for a project. Define and list out Advantages and Disadvantages for both.	10M	4	3
Q.5(A)	Describe the project appraisal? State and discuss the techniques of project appraisal?	10M	5	2
<b>OR</b>				
Q.5(B)	Analyze the importance of MIS in project management?	10M	5	4
Q.6	<b>CASE STUDY</b>	10M	4	5
	<p>The amrita foundry project is operated by Raj Academy Baden – Bangalore–University of Ranu Music and Music Business. The Raj Academy Baden –is an academy that distinguishes itself from others through outstanding reputations for all aspects of the music business. This is supported by numerous projects ranging from European partnerships to the regional development and economic support for media businesses.</p> <p>This project was initiated as a coaching tool for bands and single artists, who intend to take the decisive step towards a serious career as professionals. This project supports bands and single artists in the Music</p>			

Industry by, within a period of 18 months, offering them one-to-one coaching, intensive workshops, objective analysis, giving them the opportunity to make contacts and as well as many other outcomes. This is done with the support of experts from the music industry. The results of this project are evident many Bank pool acts have already signed with renowned labels and there are several chart entries and nominations for music awards. To promote improved networking between the music and media scenes as well as between politics and the economy events are also organized to serve as meeting points for people from music and media industries. These meetings increase general awareness of the music business as an innovative and creative sector of economy.

**Questions:**

1. How novel is the idea of amrita foundry project.
2. What strategies you recommend for the success of amrita foundry project.

**\*\*\*END\*\*\***

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## MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

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

### CORPORATE SOCIAL RESPONSIBILITY

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)	Can you recall the aim and objectives of CSR?	10M	1	2
<b>OR</b>				
Q.1(B)	Critically examine the challenges faced by CSR professionals in implementing initiatives successfully.	10M	1	4
Q.2(A)	Explain the concept of stakeholder engagement in the context of CSR and its importance.	10M	2	2
<b>OR</b>				
Q.2(B)	Evaluate the impact of CSR initiatives on employee morale, productivity, and overall internal environment.	10M	2	5
Q.3(A)	Explain the significance of conducting environmental assessments within the CSR framework.	10M	3	2
<b>OR</b>				
Q.3(B)	Why is conducting environmental assessments important in the context of CSR?	10M	3	2
Q.4(A)	Can you recall the factors that can hinder CSR activities in companies?	10M	4	2
<b>OR</b>				
Q.4(B)	Explain the advantages and positive impacts of CSR on businesses.	10M	4	2
Q.5(A)	What is the triple bottom line approach to CSR and what does it aim to achieve?	10M	5	2
<b>OR</b>				
Q.5(B)	Can you explain the importance of stakeholder engagement in the context of CSR and its impact on decision-making processes?	10M	5	2
Q.6	<b>Case Study</b>	10M	1	5
	Starbucks' Ethical Sourcing Program is a notable CSR initiative that aims to ensure responsible sourcing of coffee beans while supporting farmers, promoting sustainable farming practices, and investing in community development projects in coffee-growing regions. Starbucks recognizes the importance of ethical sourcing in the coffee industry and has taken proactive measures to ensure fair prices for coffee farmers. The company works directly with farmers, establishing long-term relationships, and providing them with financial stability by paying premium prices for high-quality beans. This approach helps to improve the livelihoods of coffee farmers and their communities.			

Additionally, Starbucks supports sustainable farming practices through initiatives such as the Coffee and Farmer Equity (C.A.F.E.) Practices. This program sets rigorous standards for environmental sustainability, social responsibility, and economic viability in coffee farming. Starbucks collaborates with farmers to implement best practices, including water conservation, soil health management, and protection of biodiversity. Moreover, Starbucks' Ethical Sourcing Program includes community development projects in coffee-growing regions. The company invests in education, healthcare, and infrastructure projects that directly benefit coffee-growing communities. This support helps to improve the quality of life and create sustainable socio-economic opportunities for the communities involved in coffee production.

**Answer the Questions:**

1. How does Starbucks' Ethical Sourcing Program contribute to the overall sustainability of the coffee industry? Discuss the impact of fair prices for farmers, sustainable farming practices, and community development initiatives on the long-term viability of coffee production.
2. What are the key elements of Starbucks' C.A.F.E. Practices program, and how does it ensure the ethical and sustainable sourcing of coffee beans? Provide examples of specific environmental and social standards implemented through this program.

**\*\*\*END\*\*\***

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## MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

**MBA II Year II Semester (R20) Regular & Supplementary End Semester Examinations, July - 2023**

### FINANCIAL ENGINEERING

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)	Define Financial Engineering and explain the nature and Process of Financial Engineering.?	10M	1	2
<b>OR</b>				
Q.1(B)	Discuss the Environmental factors that will contribute for the growth of Financial Engineering.	10M	1	2
Q.2(A)	Explain the process of new financial product development with examples.	10M	2	2
<b>OR</b>				
Q.2(B)	Analyse the impact of Repo/Reverse repo rate on economy and banking sector.	10M	2	4
Q.3(A)	What is Asset Liability Management? Discuss on various techniques used for Asset Liability Management.	10M	3	2
<b>OR</b>				
Q.3(B)	List out the various types of risks associated with the investments? How these risks can be minimized?	10M	3	2
Q.4(A)	Elaborate on various categories of mergers & acquisitions with suitable illustrations.	10M	4	3
<b>OR</b>				
Q.4(B)	Define the word "Financial Engineer" and explain the role of Financial Engineer in the current competitive scenario.	10M	4	2
Q.5(A)	Elucidate the significance of Financial Globalization and financial market linkages in the context of financial engineering.	10M	5	4
<b>OR</b>				
Q.5(B)	Discuss about the recent trends in settlement and clearing? Examine the advantages of using a copyright?	10M	5	4
Q.6	<b><u>CASE STUDY</u></b>	10M	3	5
	Khushi Banking corporation Provides the following details which are related to Assets and Liabilities of the Bank. (a)What is the Net interest Income of the bank if interest rates rises by 250 basis points. (b) What is the Net interest Income of the bank if interest rates fall down by 250 basis points			

<u>Assets</u>	<i>Rs.</i>
Sensitive Assets (10% annually)	25,00,000
20-year fixed rate loans (8% annually)	20,00,000
<b>Total Assets 45,00,000</b>	

Liabilities & Equity

Current Deposits (6% annually)	20,00,000
Fixed Term Deposits (7% annually)	15,00,000
Equity	10,00,000
<b>Total Liabilities and Equity 45,00,000</b>	

**\*\*\*END\*\*\***

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## MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

**MBA II Year II Semester (R20) Regular & Supplementary End Semester Examinations, July - 2023**

### ADVERTISEMENT AND SALES 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)	Analyze the challenges and opportunities in advertising and discuss the factors that impact the advertising industry.	10M	1	4
<b>OR</b>				
Q.1(B)	Differentiate between the various classifications of advertising and evaluate the effectiveness of each type in reaching specific target markets.	10M	1	3
Q.2(A)	Differentiate between the various types of ad copy. Discuss how each type appeals to different consumer motivations.	10M	2	2
<b>OR</b>				
Q.2(B)	Describe the elements of an advertising copy and their significance in conveying the message effectively to the target audience.	10M	2	2
Q.3(A)	Analyze the factors that influence media selection decisions.	10M	3	4
<b>OR</b>				
Q.3(B)	Analyze the role of online and mobile advertising in today's digital landscape. Discuss the advantages and challenges associated with online display ads.	10M	3	4
Q.4(A)	Discuss the importance of pre and post-testing in evaluating advertising effectiveness.	10M	4	3
<b>OR</b>				
Q.4(B)	Explore the history of advertising agencies. Trace their evolution from the beginning to their role and significance in the modern advertising industry.	10M	4	3
Q.5(A)	Evaluate various sales promotion strategies and discuss the benefits and potential risks associated with each strategy.	10M	5	5
<b>OR</b>				
Q.5(B)	Discuss the guidelines and code of conduct set by ASCI to ensure ethical advertising.	10M	5	3
Q.6	<b>CASE STUDY</b>	10M	3	5
<b>MIKE'S OLD-TIME ICE CREAM AND CHOCOLATE SHOP</b>				
<p>Mike Swann was excited to open his new business venture in the springtime. Mike's Old-Time Ice Cream and Chocolate Shop was established to take advantage of several opportunities and reach multiple audiences, all in one location. In the summertime, ice cream</p>				

should sell best. In the winter and spring, chocolate products may be given as Christmas, Valentine's, Easter, and Mother's Day presents. Mike also decided to sell fast food throughout the year, including hamburgers, hot dogs, grilled cheese sandwiches, pretzels, fries, and other items.

To make his store stand out, Mike chose to locate on the outskirts of town, where parking would be readily available and the store would be surrounded by a more natural environment including a nearby forest. Then, he was able to obtain a passenger car and caboose from a now-defunct railroad company that could be set up as a place to enjoy ice cream in a unique seating arrangement in addition to the regular tables inside the shop. Outside of the rail cars, Mike placed a swing set and other items for children.

The biggest challenge Mike faced was getting the word out. He contacted a local advertising and promotions agency to help him get started. The first question the account executive asked was, "Well, what is going to make your store stand out?"

Mike responded, "Several things. First, I am re-opening a company that served this area for years, called "Stevenson's Ice Cream." I plan to generate publicity letting everyone know that we will be selling the same kind of great-tasting ice cream that used to be offered by that company. Second, I have a partnership with a local chocolatier that is on the far side of town. We'll be selling their products in our store. And third, we are appealing to that old-fashioned, old-time relaxation that people enjoy in the summer. Families should love that."

Next the executive asked, "Who are your major competitors?" Mike answered, "For ice cream I suppose it is Baskin Robbins and Dairy Queen. For chocolate, it's probably Nestlé and Hershey's. But we are set up in such a unique way we should be able to attract people differently."

The executive and Mike agreed that the company's launch was a key time to communicate this difference. They also believed the target audience would be pretty large, including families with children, grandparents with grandkids, and other people looking to enjoy high quality chocolate and ice cream in a unique atmosphere, possibly after enjoying a quick meal. The executive pointed out that getting people to visit for the first time would be one factor but that generating return business throughout the year was the real key to long term success. It was time to get started.

**Answer the following questions:**

1. Which of the emerging trends in marketing communications can Mike use to promote his new business? Explain how it can be used.
2. Will Mike be able to use social media in his marketing communications efforts? If so, how? If not, why not?

**\*\*\*END\*\*\***



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## MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

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

### TALENT 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)	Define talent management. Explain its importance and role?	10M	1	2
<b>OR</b>				
Q.1(B)	Discuss various approaches to talent management?	10M	1	2
Q.2(A)	Examine talent management processes to drive a culture of excellence.	10M	2	2
<b>OR</b>				
Q.2(B)	Demonstrate key factors and different aspects of talent management.	10M	2	2
Q.3(A)	Compare and contrast between development of talent and deployment of talent?	10M	3	2
<b>OR</b>				
Q.3(B)	Identify the talent needs and talent forces of the future?	10M	3	2
Q.4(A)	Summarize designing employee engagement strategies.	10M	4	2
<b>OR</b>				
Q.4(B)	Do you feel questionnaires and interview methods are an efficient tool to diagnose turnover? Can you judge the efficiency of the methods?	10M	4	4
Q.5(A)	Explain the metrics of work efficiency, employee performance & organization employee performance.	10M	5	2
<b>OR</b>				
Q.5(B)	Write a short note on the following: i) talent metrics ii) human transformation and reorganization of HR	10M	5	3
Q.6		10M	1	5

#### CASE STUDY

M/s Mathushi Gojo is one among the reputed IT organizations in the global IT Service Industry. The organization has a well-designed talent management strategy in place and as a result the talent workforce is retained for long tenure in the organization. The organization had global workforce which includes expatriates and number of virtual teams supporting from across destinations. The sudden outbreak of COVID-19 was a big blow as most of the expatriates were highly terrified and wanted to return back to their home nations. This resulted as a major challenge in talent retention.

**Questions:**

1. If you were the talent manager, what will be your immediate response to the situation?
2. As the health and safety is major concern for any individual, what would be your strategy to retain the target talent?

**\*\*\*END\*\*\***

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

**MBA II Year II Semester (R20) Regular & Supplementary End Semester Examinations, July - 2023**  
**STRATEGIC FINANCIAL 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	Questions	Marks	CO	BL												
Q.1(A)	What is the significance of Financial Planning? Discuss characteristics and steps of financial Planning	10M	1	2												
<b>OR</b>																
Q.1(B)	Discuss the tools and techniques of financial modelling?	10M	1	2												
Q.2(A)	Illustrate the various approaches for measuring shareholder value?	10M	2	2												
<b>OR</b>																
Q.2(B)	"EVA is a superior measure of shareholder value creation", Elaborate	10M	2	6												
Q.3(A)	Examine the role of following in the risk analysis of capital budgeting: a) Sensitivity analysis    b) Decision tree    c) Monte Carlo simulation	10M	3	4												
<b>OR</b>																
Q.3(B)	An Enterprises investing Rs. 2, 00,000 in a project. The risk free rate of Return is 8%, risk premium is expected by the Management is 8%. The life of the project is 5 years. Following are the cash flows that are the estimated over the life of the project.	10M	3	3												
<table style="margin-left: auto; margin-right: auto;"><thead><tr><th style="text-align: left;">Year</th><th style="text-align: left;">Cash inflows</th></tr></thead><tbody><tr><td style="text-align: center;">1</td><td style="text-align: center;">25,000</td></tr><tr><td style="text-align: center;">2</td><td style="text-align: center;">60,000</td></tr><tr><td style="text-align: center;">3</td><td style="text-align: center;">75,000</td></tr><tr><td style="text-align: center;">4</td><td style="text-align: center;">80,000</td></tr><tr><td style="text-align: center;">5</td><td style="text-align: center;">65,000</td></tr></tbody></table>					Year	Cash inflows	1	25,000	2	60,000	3	75,000	4	80,000	5	65,000
Year	Cash inflows															
1	25,000															
2	60,000															
3	75,000															
4	80,000															
5	65,000															
You are required to calculate Net Present Value based on the risk-free rate of return and also on Risk adjusted Discounting Rate.																
Q.4(A)	Critically examine various types of merger with suitable examples	10M	4	4												
<b>OR</b>																
Q.4(B)	Discuss the various types of Takeovers?	10M	4	3												
Q.5(A)	Discuss corporate distress restructuring strategies?	10M	5	3												
<b>OR</b>																
Q.5(B)	What is Leveraged Buyout (LBO)? Discuss the stages in LBO	10M	5	3												

VVR Co.Ltd Provides the following information which is related to FY:2022-23.

- Sales Rs.30 Lakhs
- Variable cost 30% on Sales
- Operating Expenses 20% Sales
- Non-Operating Expenses 10% Sales.

Company has 12% Debt Capital Rs.12,00,000. Tax rate 40%. Company assumed 25% sales growth in every year in the future. You are required to find the Present values of Future cash inflows for upcoming 5 years.

**\*\*\*END\*\*\***

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

MBA II Year II Semester (R20) Regular &amp; Supplementary End Semester Examinations, July - 2023

**REWARD 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)	Examine the methods used for Job evaluation	10M	1	4
<b>OR</b>				
Q.1(B)	Explain the various forms of Pay in compensation	10M	1	2
Q.2(A)	Describe the fringe benefits and its importance in employee compensation packages	10M	2	2
<b>OR</b>				
Q.2(B)	Explain the concepts of Ranges, Grades and Broad branding	10M	2	2
Q.3(A)	Does compensation motivate behavior of employees? Justify your answer.	10M	3	2
<b>OR</b>				
Q.3(B)	Explain the process of designing skill based pay structure based on internal alignment pay policy.	10M	3	2
Q.4(A)	Examine the significance of Wage differentials in compensation Management	10M	4	3
<b>OR</b>				
Q.4(B)	Elucidate the concept of Golden Handshake scheme.	10M	4	2
Q.5(A)	Assess the balance sheet approach to Expatriate pay system	10M	5	5
<b>OR</b>				
Q.5(B)	Explain the Global factors that influence compensation manager in determining International pay system	10M	5	2

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

Mr. Vijay was appointed as HR manager in a public sector undertaking. Within one year Mr Vijay had to sign a wage agreement with the workers union. The union pressed more with regard to production department's workers, than with regard to quality department workers. The management agreed to this, as the overall increase, the union was asking, was well within its reach. Once this decision was communicated to all, commotion started among quality departments' workers. The quality department workers walked out of the union and formed a separated union. They moved around the factory with a placard that read, "Are we step children of the management" "All employees are

equal, but production employees are more equal". The decision of the management led to the perception that production was a high rated job than quality.

**Questions:**

- a) What will happen if production department employees get more compensation than quality departments' employees?
- b) Analyze the case, identify the problems and provide the solutions with justifications

**\*\*\*END\*\*\***

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

MBA II Year II Semester (R20) Regular &amp; Supplementary End Semester Examinations, July - 2023

**SERVICES MARKETING**

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 A or B only

Q.No	Question	Marks	CO	BL
Q.1(A)	Distinguish between the goods vs services.	10M	1	2
OR				
Q.1(B)	Assess the Growth of Services in Indian economy	10M	1	4
Q.2(A)	Categorize the steps involved in market segmentation for services.	10M	2	3
Q.2(B)	Classify various approaches to positioning of service offerings.	10M	2	4
Q.3(A)	Assess the elements of Services Blueprint.	10M	3	4
OR				
Q.3(B)	Classify various steps involved in new service development process.	10M	3	2
Q.4(A)	Analyse in detail the Service GAP-2 and recommend the strategies to fill the GAP-2.	10M	4	5
OR				
Q.4(B)	Examine the SERVEQUAL dimensions	10M	4	4
Q.5(A)	Explain in detail the Charities & Social Services Marketing.	10M	5	3
OR				
Q.5(B)	Assess the role of services marketing in Telecom & Postal Services.	10M	4	4
Q.6	<u>Case Study</u>	10M	2	5

Assume you manage a Three star Hotel in a cosmopolitan city.

(i) Explain the underlying pattern of demand fluctuations likely to occur at the Hotel and the challenges it would present to you as a manager. Is the pattern of demand predictable or random?

(ii) Explain demand-oriented and capacity-oriented strategies you would undertake to smoothen the peak and valleys of demand and explain the importance of physical evidence for a three star Hotel.

\*\*\*END\*\*\*

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

**MBA II Year II Semester (R20) Regular & Supplementary End Semester Examinations, July - 2023**

**DATA MINING FOR BUSINESS DECISIONS**

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 A or B only**

Q.No	Question	Marks	CO	BL
Q.1(A)	What is data mining? What are the data mining tools that are used for information or knowledge extraction from business data? Explain in brief any two data mining tools.	10M	1	3
<b>OR</b>				
Q.1(B)	Explain in detail how can you discover the hidden pattern and understand business scenarios using data mining methodologies.	10M	1	3

Q.2(A)		10M	2	3
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ID	A	B	C	Class
1	0	0	0	+
2	0	0	1	+
3	0	1	0	+
4	0	1	1	--
5	1	0	0	+
6	1	0	0	+
7	1	1	0	--
8	1	0	1	+
9	1	1	0	--
10	1	1	0	--

Design (you may randomly choose an attribute for splitting) a decision tree classifier with the training samples shown in the above table.

**OR**

Q.2(B)	Define decision tree classifier. Define Entropy and Gini index. Calculate the Entropy and the Gini Index of the sample set in the table above.	10M	2	3
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Q.3(A)	In the following samples, X1 and X2 are the attributes and Y is the class. Use the first 6 samples as training samples for a kNN classifier with k = 3. Calculate the class (C1/C2) of the 7th test sample	10M	3	3
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ID	X1	X2	Y
1	1	0	C1
2	2	1	C1
3	1	2	C1
4	5	2	C2
5	6	3	C2
6	5	4	C2
7	4	5	?

**OR**



Q.3(B) What is the difference between Bayes' classifier and Naive Bayes Classifier? Calculate the following conditional probabilities with reference to the sample points in the table in Q2(A).  
 $P(A=0/-)$ ,  $P(B=1/-)$ ,  $P(B=0/+)$ ,  $P(C=1/+)$  10M 3 3

Q.4(A) What do you mean by dimensionality reduction? Write in details about any one method of dimensionality reduction. 10M 4 3

OR

Q.4(B) Define cluster cohesion and cluster separation? Give the formula of within cluster sum of squares and between cluster sum of squares. Define MSE (Mean square error) and explain how the proper value of k is selected in k-Means algorithm 10M 4 3

Q.5(A) The following table shows the sales and advertisement expenditure of a business firm. Coefficient of correlation  $r = 0.9$ . Estimate the sales for a proposed advertisement expenditure of Rs. 10 Crores using regression analysis. 10M 5 3

	Sales (in crores)	Advertisement Expenditure(in crores)
Mean	40	6
Standard deviation	10	1.5

OR

Q.5(B) For 5 pairs of observations the following results are obtained  $\sum X = 15$ ,  $\sum Y = 25$ ,  $\sum X^2 = 55$ ,  $\sum Y^2 = 135$ ,  $\sum XY = 83$ . Find the equation of the lines of regression of Y on X and estimate the value of Y if X=5. 10M 5 3

Q.6 10M 5 4

**CASE STUDY**

Suppose you have a business of real estate and you need to decide whether to buy a land or not. What data/information you need to collect and how will you use data mining tools that help you to take your decision. Write your action plan step by step.

\*\*\*END\*\*\*