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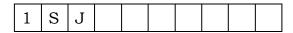### FIRST/SECOND SEMESTER MBA DEGREE SEMESTER END EXAMINATIONS

SEPTEMBER 2025

Course:	Management and Organizational Behaviour				
Course Code:	**MBA101**	**Program:**		**MBA**	
Max Marks:	**100**	**Duration:**		**03 Hours**	

Instructions:

1. Part A and Part C (Case Study) are Compulsory

2. Part B questions are choice based

Q. No.	Questions	Marks	CO	RBTL
	PART A			
1	Illustrate the 14 principles of Henry Fayol.	5	1	L2
2	Interpret the types of organization structure.	5	2	L2
3	Classify determinants of organizational behavior.	5	3	L2
4	Infer the different levels of Maslow's Hierarchy of Needs and their impact on motivation.	5	3	L2
5	Demonstrate the sources and contingencies of power in an organization and describe how they affect leadership effectiveness.	5	4	L2
6	Outline the main steps involved in the Appreciative Inquiry Approach to organizational change and explain how it helps in improving organizational effectiveness.	5	5	L2
	PART B			
7	TCS faces challenge up skilling workforce to meet digital transformation demands as some employee's resist adapting to new technologies. As a Head of TCS, apply the contemporary issues in management.	8	1	L3
	OR			
8	Identify the history of management and inspect the levels and kinds of Manager.	8	1	L3
9	"TATA Motors launched a new "Nexon-EV-Z" car, aiming to sell 1 million units (across globe) in the first year. But after 6 months, they've only sold 400,000 units which is 20% below target". Being a Board of Director select the stages of controlling to help the company bounce back stronger to meet its sales target.	8	2	L3
	OR			
10	"In the Indian market, Hindustan Unilever Limited (HUL) intends to introduce a new product-luxury shampoo. In order to achieve its commercial goals", as a board of director select the company through the planning phases to guarantee a successful product launch.	8	2	L3
11	"Develop the historical evolution of Organizational Behavior as a field of study, highlighting key milestones and their impact on contemporary practices."	8	3	L3
	OR			

12	"Tata Steel acquired Corus Group, but the integration has been slow. Employees struggle to adapt to the new environment". As a senior advisor, utilizing five key organizational behavior models to identify the challenges at Tata Steel and propose impactful integration strategies.	8	3	L3
13	Wipro is seeking to recruit a new team leader for an important project. According to the Big Five Model. Analyse personality traits should you consider in a candidate to guarantee success in this position.	8	3	L4
OR				
14	Examine the Model of Perceptual Process to analyze how Amazon's recent changes in remote work policies influence employee perceptions and organizational dynamics.	8	3	L4
15	Contrast the Model of Team Effectiveness to assess how the collaboration and challenges faced by remote teams at Twitter during the 2022 layoffs influenced team performance and organizational outcomes.	8	4	L4
OR				
16	Inference the Key aspects of workplace conflict negotiation strategies to analyze how the negotiations between Apple and the European Union over app store policies in 2022 impacted workplace dynamics and decision-making processes within the company.	8	4	L4
17	Inspect the concept of organizational change and explain the common reasons why employees resist change in the workplace.	8	5	L4
OR				
18	Classify the key elements that shape an organization's culture and explain why organizational culture plays a crucial role in the success of a business.	8	5	L4
PART C				
19	**The Shipping Industry** For the past five years, I have been working at McKay, Sanderson, and Smith Associates, a midsize accounting firm in Boston that specializes in commercial accounting and audits. My particular specialty is accounting practices for shipping companies, ranging from small fishing fleets to a couple of the big firms with ships along the East Coast. About 18 months ago, McKay, Sanderson, and Smith Associates became part of a large merger involving two other accounting firms. These firms have offices in Miami, Seattle, Baton Rouge, and Los Angeles. Although the other two accounting firms were much larger than McKay, all three firms agreed to avoid centralizing the business around one office in Los Angeles. Instead, the new firm—called Goldberg, Choo, and McKay Associates—would rely on teams across the country to "leverage the synergies of our collective knowledge" (an often-cited statement from the managing partner soon after the merger). The merger first affected me a year ago when my boss (a senior partner and vice president of the merger firm) announced that I would be working more closely with three people from the other two firms to become the firm's new shipping industry ac- counting team. The other team members were Elias in Miami, Susan in Seattle, and Brad in Los Angeles. I had met Elias briefly at a meeting in New York City during the merger, but had never met Susan or Brad, although I knew that they were shipping accounting professionals at the other firms. Initially, the shipping team activities involved e-mailing each other about new contracts and prospective clients. Later, we were asked to submit joint monthly reports on accounting statements and			

issues. Normally, I submitted my own monthly reports, which summarized activities involving my own clients. Coordinating the monthly report with three other people took much more time, particularly since different accounting documentation procedures across the three firms were still being resolved. It took numerous e-mails and a few telephone calls to work out a reasonable monthly report style.

During this aggravating process, it became apparent—to me at least—that this team business was costing me more time than it was worth. Moreover, Brad in Los Angeles didn't have a clue about how to communicate with the rest of us. He rarely replied to e-mails. Instead, he often used the telephone voice mail system, which resulted in lots of telephone tag. Brad arrives at work at 9:30 a.m. in Los Angeles (and is of- ten late), which is early afternoon in Boston. I typically have a flexible work schedule from 7:30 a.m. to 3:30 p.m. so that I can chauffeur my kids after school to sports and music lessons. So Brad and I have a window of less than three hours to share information.

The biggest nuisance with the shipping specialist accounting team started two weeks ago when the firm asked the four of us to develop a new strategy for attracting more shipping firm business. This new strategic plan is a messy business. Somehow, we have to share our thoughts on various approaches, agree on a new plan, and write a unified submission to the managing partner. Already, the project is taking most of my time just writing and responding to e-mails and talking in conference calls (which none of us did much before the team formed).

Susan and Brad have already had two or three misunderstandings via e-mail about their different perspectives on delicate matters in the strategic plan. The worst of these disagreements required a conference call with all of us to resolve it. Except for the most basic matters, it seems that we can't understand each other, let alone agree on key issues. I have come to the conclusion that I would never want Brad to work in my Boston office (thank goodness he's on the other side of the country). While Elias and I seem to agree on most points, the overall team can't form a common vision or strategy. I don't know how Elias, Susan, or Brad feel, but I would be quite happy to work somewhere that did not require any of these long-distance team headaches.

a) Evaluate the type of team was formed here? Was it necessary, in your opinion?	**6**	**4**	**L5**
b) Influence the team effectiveness model and related information in this case to choose the strengths and weaknesses of this team's environment, design, and processes.	**6**	**4**	**L5**
c) Assuming that these four people must continue to work as a team, recommend ways to improve the team's effectiveness.	**10**	**4**	**L5**

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FIRST/SECOND SEMESTER MBA DEGREE SEMESTER END EXAMINATIONS
SEPTEMBER 2025

Course:	HUMAN RESOURCE MANAGEMENT			
Course Code:	MBA201	Program:	MBA	
Max Marks:	100	Duration:	03 Hours	

Instructions:

1. Part A and Part C (Case Study) are Compulsory

2. Part B questions are choice based

Q.No.	Questions	Marks	CO	RBTL
	PART A			
1	Outline the principles and major functions of Human Resource Management.	5	1	L2
2	Classify the types of selection tests used during the selection process	5	1	L2
3	Explain the various types of Performance Rating Systems used in organizations.	5	1	L2
4	Summarize the impact of weak adoption of Human Resource Management in SMEs.	5	1	L2
5	Interpret the key factors affecting the innovation process in organizations.	5	1	L2
6	Illustrate the challenges of managing a hybrid workforce in modern organizations.	5	1	L2
	PART B			
7	You are an HR manager in a medium-sized company. A highly valued employee consistently arrives late for work without explanation, causing disruptions. Apply relevant HRM principles to address this issue constructively.	8	1	L3
	OR			
8	Since moving to remote work, your company faces low motivation and unclear performance standards. Apply the competencies of HR in managing the firm Performance.	8	1	L3
9	A manufacturing company faces frequent workplace accidents. HR suspects a lack of training and recruitment of suitable staff. Develop a Training Need Analysis (TNA) and recruitment advertising to address the issue.	8	2	L3
	OR			
10	A bank wants to upskill its mid-level managers in leadership and emotional intelligence. Construct a suitable training program and suggest relevant training methods for this purpose.	8	2	L3
11	A food delivery startup lacks structured performance reviews. Build a simple performance management cycle suitable for a startup.	8	3	L3
	OR			
12	A retail chain is expanding to rural areas. Identify internal and external factors to consider while designing compensation packages across locations.	8	3	L3
13	A wellness center chain noticed declining customer satisfaction with high staff turnover. Examine the relationship between HRM practices and service quality.	8	4	L4

	OR			
14	Many SMEs operate informally with no proper HR structure. Analyze how the absence of structured HRM affects workforce productivity using an Indian SME example.	**8**	**4**	**L4**
15	Your company recently hired many Gen Z employees. Inspect innovative HR strategies to meet their expectations around flexibility and purpose-driven work.	**8**	**4**	**L4**
	OR			
16	Flexi Mobility, a transport-tech firm, includes HR in strategic meetings. Analyze the benefits of positioning HR as a strategic partner in fostering innovation and business growth.	**8**	**4**	**L4**
17	Gen Z employees are entering the workforce with new expectations. Discover AI-drive HR practices to meet their needs in a hybrid work environment.	**8**	**5**	**L4**
	OR			
18	Your company has adopted an integrated HR platform, but some employees resist it. Discuss the advantages and HR challenges of implementing all-in-one HR tools.	**8**	**5**	**L4**
	PART C			
19	**"The Missed Opportunity in Team Recognition"** Radhika, a team leader in the marketing department of a consumer electronics firm, had been leading a high-stakes product campaign for over two months. Her team, especially Rahul, had gone above and beyond to meet tight deadlines and changing client demands. During the final review presentation with the company's senior leadership, the CEO praised Radhika for her leadership and the success of the campaign. However, Radhika didn't mention her team's contribution, particularly Rahul's creative efforts that had led to the campaign's viral success. After the meeting, Rahul seemed unusually quiet. Later in the day, he sent a polite email to Radhika, stating that although he was happy about the campaign's success, he felt disheartened for not being acknowledged. Radhika was taken aback. She realized her oversight and immediately responded to Rahul's email, apologizing and recognizing his efforts. She then organized a small team gathering the next day and openly praised everyone's individual contributions, especially Rahul's. She also took steps to ensure that future presentations would include a section dedicated to team acknowledgments.			
	a) Imagine you are Rahul. How would you evaluate Radhika's apology and follow-up actions? Would you consider the issue resolved? Justify your response.	**6**	**4**	**L5**
	b) Critically analyze Radhika's leadership approach in the initial meeting and suggest what she could have done differently to avoid the issue.	**6**	**4**	**L5**
	c) Do you think public recognition is necessary in a professional setting, or should private praise suffice? Evaluate with justification in the context of this case.	**10**	**4**	**L5**

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FIRST/SECOND SEMESTER MBA DEGREE SEMESTER END EXAMINATIONS

SEPTEMBER 2025

Course:	FINANCIAL MANAGEMENT		
Course Code:	MBA202	Program:	MBA
Max Marks:	100	Duration:	03 Hours

Instructions:

1. Part A and Part C (Case Study) are Compulsory

2. Part B questions are choice based

Q.No.	Questions	Marks	CO	RBTL
	PART A			
1	Relate the role of finance manager in current volatile environment.	5	1	L2
2	Summarize the concept of time value of money.	5	1	L2
3	You are evaluating a new investment project for your company. Demonstrate the key steps you would follow in the capital budgeting process.	5	1	L2
4	"Retained earnings are a cost of free source of fund". Illustrate	5	1	L2
5	As a finance head of a company, Show the key factors would you consider while framing the dividend policy? Briefly explain how each factor may influence your decision.	5	1	L2
6	Illustrate the key factors affecting working capital requirements of a firm.	5	1	L2
	PART B			
7	You have been appointed as a financial consultant for a startup aiming to raise funds for expansion. How would you guide them in choosing appropriate institutions or instruments from the Indian financial system? Build the structure of the Indian financial system to justify your recommendations.	8	1	L3
	OR			
8	As a financial manager of a company planning a major capital investment, which objective - profit maximization or wealth maximization, would you prioritize in your decision-making? Justify your choice with practical implications on shareholder value, risk, and long-term sustainability.	8	1	L3
9	Dhanu has 4 options to choose at the time of retirement. Identify the best option. Receiving: Rs. 5,00,000 today Rs. 10,00,000 after 5 years Rs. 1,50,000 every year for 12 years Rs. 75,000 every year for ever, r = 10%.	8	2	L3
	OR			

10	Solve the below using time value of money methods: Mr. X will invest Rs. 5,000 at the end of each year for 6 years. Calculate its future value if interest rate is 12% per annum. An employee is about to retire. His employer has offered him two post retirement options: an annual pension of Rs. 10,000 as long as he lives and a lump sum payment of Rs. 60,000 if employee expects to live for 15 years and rate of interest 15%. Which alternative should he select? You want to take a trip to the moon that costs Rs. 10,00,000. You plan to save Rs. 50,000 annually for 10 years. The cost is expected to remain unchanged in nominal terms. What rate of interest (r) must your savings earn annually to reach your goal in 10 years?	8	2	L3

11	A firm whose cost of capital is 10% is considering two mutually exclusive projects X and Y. The details of which are given:	8	3	L3

Years	Project X	Project X
0	Rs.100000	Rs.100000
1	Rs.10000	Rs.50000
2	Rs.20000	Rs.40000
3	Rs.30000	Rs.20000
4	Rs.45000	Rs.10000
5	Rs.60000	Rs.10000

Plan Which project should be selected on the basis of NPV?

OR

12	A company is considering an investment proposal to install a new milling control at a cost of Rs.50,000. The facility has a life expectancy of 5 years and no salvage value. The tax rate is 35 percent. Assume the firm uses straight line depreciation and taxes (CFBT) from the investment proposal are as follows:	8	3	L3

Year	1	2	3	4	5
CFBDT	10,000	10,692	12,769	13,462	20,835

Develop the following: Payback period, Average rate of return, Net Present Value (NPV) at 10 % discount rate and Profitability index at 10 % discount rate.

13	From the following capital structure of a company, classify the overall cost of capital using i) Book value weights and ii) Market value weights.	8	3	L4

Source	Book value (Rs)	Market value (Rs)
Equity share capital (Rs 10 shares)	45,000	90,000
Retained earnings	15,000	-
Preference capital	10,000	10,000
Debentures	30,000	30,000

The after tax cost of different sources of finance is : Equity capital 14%, Retained earnings 13% , Preference share capital 10%, Debentures 5%.

OR

14	Consider the following information to risk free rate of securities and market return of securities of 'A' Ltd., during the last 6 years.	8	3	L4

Year	Rf (%)	Rm (%)
1	0.06	0.14
2	0.05	0.03
3	0.07	0.21
4	0.08	0.26
5	0.09	0.03
6	0.07	0.11

	On the basis of the above information you are required to Inspect cost of equity capital using CAPM approach if Beta is 0.863.			
15	ABC Ltd., is an established company which requires more funds of Rs.30,00,000 for its expansion scheme. A part from the original equity capital of Rs.30,00,000 at Rs.100 per share. The director has the following options to raise the additional funds: All in equity shares Rs.10,00,000 in equity shares and balance in 8% debentures All in form of debentures carrying an interest rate of 8% Rs.10,00,000 in 12% preference shares and the balance in equity shares. The expected EBIT is Rs.8,00,000 and the tax rate applicable is 50%. Advice the company by analyzing the option.	**8**	**4**	**L4**
	OR			
16	The following is the balance sheet of V Ltd as on 31/03/2025. 	Liabilities	Amount	Assets	Amount	 	---	---	---	---	 	Equity capital (Rs.10 per share)	1,80,000	Fixed assets	4,50,000	 			Current assets	1,50,000	 	10% Debentures	2,40,000			 	Retained earnings	60,000			 	Current liabilities	1,20,000			 		6,00,000		6,00,000	 The Company's total assets turnover ratio is 2.5 times. The fixed operating costs are Rs. 2 lakhs. Variable operating costs ratio is 40%. Income tax is 50%. Examine three leverages.	**8**	**4**	**L4**
17	Prepare a cash budget for the months of July and August from the following information: 	Particulars	Amount	 	---	---	 	Estimated sales: May	80,000	 	Estimated sales: June	1,00,000	 	Estimated sales: July	1,20,000	 	Estimated sales: August	1,50,000	 	Estimated sales: September	1,60,000	 Additional Information: • 50% of sales are on cash, and the remaining 50% are on credit. • Credit sales are collected one month after the sale. • Purchases for each month are 60% of next month's sales and are paid in the same month. • Monthly wages are 20,000. • Rent is 10,000 per month. • Opening cash balance on July 1 is 25,000.	**8**	**4**	**L4**
	OR			
18	As a financial advisor for a multinational corporation planning a major infrastructure project, how would you integrate principles of sustainable finance into your investment decision-making process? Illustrate your answer with specific steps and considerations related to ESG (Environmental, Social, and Governance) criteria.	**8**	**4**	**L4**

PART C				
19	While preparing a project report on behalf of a client, you have collected the following facts. Estimate the net working capital required for that project. Add 10% to computed figures to allow contingencies. 	Particulars	Cost. per unit
---	---
Raw-material	Rs.80
Direct Labour	Rs.30
Overhead	Rs.60
[Exclusive depreciation Rs.10/PU]	
Total	Rs.170 | Additional Information: • Selling price Rs. 200 per unit • Level of activity 1,04,000 units of production per annum. • Raw material in stock, average 4 weeks • Work-in progress (50% completion stage in respect to conversion costs and 100% completion in respect of material), Average 2 weeks. • Finished goods in stock, Average 4 weeks • Credit allowed by suppliers, Average 4 weeks • Credit allowed to debtors, Average 8 weeks • Lag in payment of wages, Average 1.5 weeks • Cash at bank is expected to be Rs. 25,000 You may assume that production is carried on evenly throughout the year (52 Weeks) and wages and overheads accrue similarly. All sales on credit basis only.				
	a) Estimate the value of current assets	**10**	**4**	**L5**
	b) Estimate the value of current liabilities	**6**	**4**	**L5**
	c) Evaluate working capital requirement to apply for a short-term loan from the bank.	**6**	**4**	**L5**

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FIRST/SECOND SEMESTER MBA DEGREE SEMESTER END EXAMINATIONS

SEPTEMBER 2025

Course:	RESEARCH METHODOLOGY AND IPR		
Course Code:	MBA203	Program:	MBA
Max Marks:	100	Duration:	03 Hours

Instructions:

1. Part A and Part C (Case Study) are Compulsory

2. Part B questions are choice based

Q.No.	Questions	Marks	CO	RBTL
	PART A			
1	Classify the types of Research Design.	5	1	L2
2	Outline the different methods of literature review.	5	1	L2
3	Explain the Characteristics of sampling design.	5	1	L2
4	Illustrate the types of scale of Measurement with examples.	5	1	L2
5	Show the components of Research Report	5	1	L2
6	Summarize the nature of intellectual property rights.	5	1	L2
	PART B			
	Module 1			
7	"Ethical issues for researchers encompass a wide range of concerns, including honesty, integrity and respect for participants". Identify the ethical issues concerning to the researchers and participants.	8	2	L3
	OR			
8	"A research problem is a clear, concise statement that identifies a specific issue, challenge, or gap in knowledge that a researcher intends to investigate through their study". Choose the important Considerations in selecting a research problem.	8	1	L3
	Module 2			
9	"Experimental designs are structured research methods used to test hypotheses by manipulating variables and observing the effects". Choose the different experimental designs in research.	8	2	L3
	OR			
10	"A questionnaire in research is a data collection tool consisting of a series of questions designed to gather information from respondents". Identify the benefits and limitations of mail questionnaire in data gathering.	8	2	L3
	Module 3			
11	"A sampling design is a definite plan for obtaining a sample from a given population". Apply the different types of sampling design business research.	8	3	L3
	OR			
12	"Sampling is the process of selecting a subset of individuals or data points from a large population to study and make inferences about the entire population". Organize the benefits and limitations of the sampling in a research.	8	3	L3

	Module 4			
13	"Data collection is the process of collecting and evaluating information or data from multiple source to find answers to research problems". Classify the types of data collection in research.	8	3	L4
	OR			
14	Telephone interviewing in research is one of the type of primary research which involves conducting interviews over the phone to gather data in market research. In this context analyze the benefits and limitations of telephone interview.	8	3	L4
	Module 5			
15	"Data analysis is the process of inspecting, cleansing, transforming, and modeling data with the goal of discovering useful information and decision-making". Examine different methods of data analysis.	8	4	L4
	OR			
16	A Research report is a comprehensive document that details the process and findings of a systematic investigation. Inspect the types of Research reports.	8	4	L4
	Module 6			
17	Intellectual property refers to creation of the mind, such as inventions, literary and artistic works, designs and symbols used in commerce. Categorize the types of intellectual property.	8	4	L4
	OR			
18	IPRs enable creators to control the use and distribution of their work, fostering economic growth and cultural development. List and analyse the Benefits and limitations of intellectual property rights.	8	4	L4
	PART C			
19	**MANAGEMENT DILEMMA OF WALMART INC.** Walmart Inc. was founded by Sam Walton. It was incorporated in 1969. Walmart is a multinational retail corporation that is based in America and operates discount department stores, grocery stores, and a chain of hypermarkets. Walmart is headquartered in Bentonville, Arkansas. Walmart is considered as the largest retail organisation that operates different warehouses and departmental stores globally. The research was conducted for finding the solution of management dilemma of all Walmart stores in the US that faced a reduction in sales during the harsh economic times with 2.6 percent reduction in store visits. Researchers used Management-Research Question Hierarchy (MRQH) for finding the management's dilemma. MRQH is a process of sequential question formulation that helps researchers find solutions to a specific situation or management dilemma. It was found that during the initial 5 months, there was a drop of 82.8 million in customer visits when Walmart's competitors like the Dollar General Corp and the Kroger Co. have increased their sales. This was identified and defined as the existing problem which was required to be solved promptly. Walmart was required to make sure that its stores address all the existing demands of their customers for ensuring customer retention.			

Various solutions suggested by the researches for Walmart stores were as follows: • Management must recreate the organisation's leadership in terms of price and delivery as per the customer's needs. • Management must focus on delivering high-quality products at reasonable or reduced prices in every season. • Management must emphasise on offering a different range of products to the customer and offer more choices.				
a) Interpret the word "Dilemma". Explain the dilemma which was faced by the management of Walmart in this case.	**6**	**4**	**L5**
b) Determine the competitors of Walmart and research design to know more about them (Competitors).	**6**	**4**	**L5**
c) As a researcher recommend the solutions to solve the management's dilemma presented in this case study.	**10**	**4**	**L5**

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FIRST/SECOND SEMESTER MBA DEGREE SEMESTER END EXAMINATIONS

SEPTEMBER 2025

Course:	BUSINESS STATISTICS			
Course Code:	MBA104	Program:		MBA
Max Marks:	100		Duration:	03 Hours

Instructions:

1. Part A and Part C (Case Study) are Compulsory

2. Part B questions are choice based

Q.No.	Questions	Marks	CO	RBTL
	PART A			
1	Summarize the characteristics of measures of central tendency.	**5**	**1**	**L2**
2	Outline the differences between Correlation and Regression.	**5**	**1**	**L2**
3	Summarize the probability distribution & Explain the methods of theoretical probability distribution.	**5**	**1**	**L2**
4	Explain the common methods used to estimate seasonal indices in a time series.	**5**	**1**	**L2**
5	Outline the concept of hypothesis & classify hypothesis tests.	**5**	**1**	**L2**
6	"JASP is an excellent alternative to SPSS, courtesy its range of unique features that makes it stand out from other statistical software" – In the light of this statement, list the key features of JASP.	**5**	**1**	**L2**
	PART B			
7	Logistics firms largely operate with a wide variety of trucks and other modes of transport. The soul of these trucks are the tyres which is often seen as a factor that such firms do not compromise the quality of. The life of these trucks is measured in terms of number of kilometers they last. However, the consistency of their performance is also a concern as these trucks may operate on hilly areas, tough surfaces etc. and may be subjected to frequent wear and tear. Last-Mile Limited is one such transport firm that uses tyres of many brands. In a specific occasion, two brands of tyres that this firm frequently uses are tested with the following results: Compare the variability and state which brand of tyres would be used on fleet of trucks of Last-Mile Limited.	**8**	**2**	**L3**

Table within Q.7:

Life (in thousand miles)	Number of Tyres	
	Brand X	Brand Y
20 – 25	1	0
25 – 30	22	24
30 – 35	64	76
35 – 40	10	0
40 – 45	3	0

	OR			
8	Averages are the most apt measure of assessing a firm's profit measure over a period of time. However, when the measure of average cannot be found directly, the values of median and mode can be used as a basis as an alternative. The industry data for several firms under each profit estimate is summarized as under. The manager of these firms is eager to gauge the average profits. Using the median and modal profit values, help the manager arrive at the average profit level. 	Profits	10	20	30	40	50	60
---	---	---	---	---	---	---
No of Companies	8	23	45	65	75	80		**8**	**2**	**L3**
9	An economist working with administrative department of a state was entrusted with the task of highlighting if the employment levels of his state was getting influenced by the prevalence of manufacturing activities in various sectors. For five such sectors, the values of index of production and for four similar sectors, the values of unemployment have been tabulated. Assist the economist in understanding if a relationship exists amongst these two variables and interpret the result in your own terms to shed light on the economic theories describing both these phenomena. 	Index of Production (X)	6	2	10	4	8
---	---	---	---	---	---
Unemployment (Y)	9	11	?	8	7	 Arithmetic means of X and Y series are 6 and 8 respectively.	**8**	**2**	**L3**
	OR			
10	Develop regression equations of X on Y and Y on X. Also estimate the sale of tyres when registrations are known to be 850. 	Year	1	2	3	4	5
---	---	---	---	---	---
Motor registrations (X)	600	630	720	750	800
No of tyres sold (Y)	1250	1100	1300	1350	1500		**8**	**2**	**L3**
11	The incidence of occupational disease in an industry is such that workers have 20% chance of suffering from it. Estimate the Probability that out of 6 workers, 4 or more will have the disease.	**8**	**2**	**L3**
	OR			
12	The daily wages of 1000 workmen are normally distributed around a mean of Rs. 70 with a standard deviation of Rs. 5.Estimate the number of workers whose daily wages are between Rs. 65 and Rs. 68. Estimate the lowest wages of the 100 highest paid workers.	**8**	**2**	**L3**
13	Strengthening sales forecasts is a critical task of any firm. The accuracy of the forecasts largely depends on a number of factors. This can be better analyzed statistically when a trend analysis is performed. Formulate a trend for the data given using least squares method and estimate the trend values. Also determine sales for the year 2026. 	Year	2016	2017	2018	2019	2020	2021	2022
---	---	---	---	---	---	---	---
Sales (thousands)	77	88	94	85	91	98	90		**8**	**3**	**L4**

	OR			
14	A company engaged in manufacturing sugar has over the years observed that the quarterly variations in the production and sale of sugar has been immense owing to climatic conditions and other factors outside the control of the management. The management of the firm is interested to understand the impact of these variations. Help the firm by estimating seasonal indices by 'ratio to moving average' method: 	**8**	**3**	**L4**

Quarters				
Year	I	II	III	IV
2015	75	60	53	59
2016	86	65	63	80
2017	90	72	66	85
2018	100	78	72	93

15	The following are the weights of ten persons before and after they underwent a weight reduction programme. Can we conclude that weights were reduced after persons underwent weight reduction programme? Interpret. (Take α = 5%)	**8**	**3**	**L4**

Before (Kgs)	86	92	100	93	88	80	88	92	95	106
After (Kgs)	77	84	92	87	80	74	80	85	95	96

	OR			
16	In a survey of 200 boys of which 75 were intelligent, 40 had educated fathers; while 85 of the unintelligent boys had uneducated fathers. Do these figures support the hypothesis that educated fathers have intelligent boys?	**8**	**3**	**L4**
17	You are tasked with performing a Chi-square goodness of fit test using JASP to determine if the distribution of the categorical data from a sample fits a specific expected distribution. List the steps to perform the test and infer the results in JASP.	**8**	**3**	**L4**
	OR			
18	You are tasked with conducting a One-way ANOVA in JASP to assess whether there is a significant difference in the mean scores of a variable across different groups. Identify the steps to perform the analysis using an example of a data set, infer results and draw conclusions based on statistical output.	**8**	**3**	**L4**
	PART C			
19	a) The management of a photograph record company has discovered that the number of defects on record appears to follow Poisson distribution with mean equal to 0.4. Applications of Poisson distribution like as in this case, encompass a wide variety of applications. Summarize your understanding of the concept and conditions necessary for Poisson distribution, along with other applications of the distribution.	**6**	**4**	**L5**
	b) For this photograph record company, if the management sets a policy that all photograph records sold to customers must not have any defects, what percentage of its records production will not be made available for sale because of defects? Determine.	**6**	**4**	**L5**

c) The management of the photograph record company needs to understand if there could be differences in the actual sales made by the firm and that of the sales reflected via a probability analysis. To infer the same, you are instructed to Solve for obtaining the theoretical frequencies by "fitting a Poisson distribution":	10	4	L5

X	0	1	2	3	4	5
f	110	105	90	3	2	1

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FIRST/SECOND SEMESTER MBA DEGREE SEMESTER END EXAMINATIONS

SEPTEMBER 2025

Course:	OPERATIONS RESEARCH			
Course Code:	MBA204	Program:	MBA	
Max Marks:	100	Duration:	03 Hours	

Instructions:

1. Part A and Part C (Case Study) are Compulsory.

2. Part B questions are choice based.

3. Use of Code Book permitted.

Q.No.	Questions	Marks	CO	RBTL
	PART A			
1	Describe the characteristics of operations research.	5	1	L2
2	Explain the limitations of using linear programming technique.	5	1	L2
3	Explain the steps involved in Vogel's Approximation Method (VAM) for finding the initial solution.	5	1	L2
4	Explain the rules of dominance used for the evaluation of two-person zero-sum games without a saddle (equilibrium) point.	5	1	L2
5	Explain the Johnson's rule algorithm used to optimize the total elapsed time for processing n jobs through two machines.	5	1	L2
6	Summarize the differences between PERT and CPM.	5	1	L2
	PART B			
	Module 1			
7	Apply the phases of Operations Research to optimize the scheduling process in a public transportation system, considering factors like passenger demand, fleet availability, and route efficiency.	8	2	L3
	OR			
8	Classify the Quantitative approach to decision making models.	8	2	L3
	Module 2			
9	Anita Electric Company produces two products P1 and P2. Products are produced and sold on a weekly basis. The weekly production cannot exceed 25 units for product P1 and 35 units for product P2 because of limited available facilities. The company employs total of 60 workers. Product P1 requires 2 man-weeks of labor, while P2 requires one man-week of labor. Profit margin on P1 is Rs.60 and on P2 is Rs.40. Maximize Z=60X1+40X2 i) Weekly production for p1:X1≤ 25 ii) Weekly production for P2: X2 ≤ 25 iii) Workers 2X1+X2=60 1. Formulate this problem as an LP problem. 2. Can you apply the graphical method to:	8	2	L3

	a) Represent each constraint on a graph, b) Identify the feasible region that satisfies all constraints, c) Determine the corner points of this feasible region, d) Evaluate the objective function Z at each corner point, and Identify the units of P1and P2 that will maximize total profit.			
OR				
10	A diet for a sick person must contain at least 4,000 units of vitamins, 50 units of minerals and 1,400 calories. Two foods A and B are available at a cost of Rs. 4 and Rs. 3 per unit, respectively. If one of A contains 200 units of vitamins, 1 unit of mineral and 40 calories and one unit of food B contains 100 units of vitamins, 2 units of minerals and 40 calories. 1. Formulate this problem as an LP model and 2. Apply the graphical method to find combination of foods to be used to have least cost by: a) Representing each constraint on a graph, b) Identify the feasible region that satisfies all constraints, c) Determine the corner points of this feasible region, d) Evaluate the objective function Z at each corner point, and Identify the values for number of units of food A and B to be used, that will minimize total cost.	8	2	L3
Module 3				
11	A dairy firm has three plants located in a state. The daily milk production at each plant is as follows: Plant 1 : 6 million litres, Plant 2 : 1 million litres, and Plant 3 : 10 million litres Each day, the firm must fulfil the needs of its four distribution centers. The minimum requirement of each centre is as follows: Distribution centre 1 : 7 million litres, Distribution centre 2 : 5 million litres, Distribution centre 3 : 3 million litres, and Distribution centre 4 : 2 million litres Cost (in hundreds of rupees) of shipping one million litre from each plant to each distribution centre is given in the following table: See table below. Find the initial basic feasible solution for given problem by using following methods: (a) North-west corner rule (b) Least cost method	8	3	L3

Plant		Distribution center				Supply
		D1	D2	D3	D4	
	P1	2	3	11	7	6
	P2	1	0	6	1	1
	P3	5	8	15	9	10
	Demand	7	5	3	2	

OR				

12	The cost conscious company requires for the next month 300, 260 and 180 tonnes of stone chips for its three constructions C1, C2 and C3 respectively. Stone chips are produced by the company at three mineral fields taken on short lease by the company. All the available boulders must be crushed into chips. Any excess chips over the demands at sites C1, C2 and C3 will be sold ex-fields. The fields are M1, M2 and M3 which will yield 250, 320 and 280 tones of stone chips respectively. Transportation costs from mineral fields to construction sites vary according to distances, which are given below in monetary unit (MU).	8	3	L3

	To	C1	C2	C3	Supply
From	M1	8	7	6	250
	M2	5	4	9	320
	M3	7	5	5	280
	Demand	300	260	180	

Determine the economic transportation plan for the company and the overall transportation cost in MU by using VAM.

Module 4

13	A city corporation has decided to carry out road repairs on four main arteries of the city. The government has agreed to make a special grant of Rs 50 lakh towards the cost with a condition that the repairs be done at the lowest cost and quickest time. If the conditions warrant, a supplementary token grant will also be considered favorably. The corporation has floated tenders and five contractors have sent in their bids. In order to expedite work, one road will be awarded to only one contractor.	8	2	L4

Cost of Repairs (Rs in lakh)

Contractors/Road	R_1	R_2	R_3	R_4
C_1	9	14	19	15
C_2	7	17	20	19
C_3	9	18	21	18
C_4	10	12	18	19
C_5	10	15	21	16

(a) Find the best way of assigning the repair work to the contractors and the costs.
(b) If it is necessary to seek supplementary grants, what should be the amount sought?
(c) Which of the five contractors will be unsuccessful in his bid?

OR

14	Two competitors are competing for the market share of the similar product. The payoff matrix in terms of their advertising plan is shown below:	8	2	L4

	Competitor A	No Advertising	Medium Advertising	Heavy Advertising
			Competitor B	
No Advertising		10	5	–2
Medium Advertising		13	12	13
Heavy Advertising		16	14	10

Suggest optimal strategies for the two firms and the net outcome thereof by applying Dominance Rule.

Module 5

15	Analyze the simulation process used in an industrial setting to model complex production or service operations. Identify the key components, interpret the interrelationships among input variables, constraints, and outputs, and examine how simulation helps in improving decision-making and operational efficiency.	8	3	L4

OR

16	A readymade garments manufacturer has to process 7 items through two stages of production, viz., cutting and sewing. The time taken for each of these items at the different stages are given below in appropriate units:	8	3	L4

Item	1	2	3	4	5	6	7
Process time Cutting	5	7	3	4	6	7	12
Sewing	2	6	7	5	9	5	8

Find an order in which these items are to be processed through these stages so as to minimize the total processing time.

Module 6

17	An established company has decided to add a new product to its line. It will buy the product from a manufacturing concern, package it, and sell it to a number of distributors that have been selected on a geographical basis. Market research has already indicated the volume expected and the size of sales force required. The steps shown in the following table are to be planned.	8	3	L4

Activity	Description	Predecessors	Duration (Days)
A	Organize sales office	-	6
B	Hire salesmen	A	4
C	Train salesmen	B	7
D	Select advertising agency	A	2
E	Plan advertising campaign	D	4
F	Conduct advertising campaign	E	10
G	Design package	-	2
H	Setup packaging facilities	G	10

	I	Package initial stocks	J, H	6			
	J	Order stock from manufacturer	-	13			
	K	Select distributors	A	9			
	L	Sell to distributors	C, K	3			
	M	Ship stocks to distributors	I, L	5			

The company can begin to organize the sales office, design the package, and order the stock immediately. Also, the stock must be ordered and the packing facility must be set up before the initial stocks are packaged.

a) Draw an arrow diagram for this project.

b) Indicate the critical path.

For each non-critical activity, find the total and free float.

| | **OR** | | |

18	An R&D project has a list of tasks to be performed in days whose time estimates are given in the Table below, as follows: 	Activity i → j	Activity Name	t_o	t_m	t_p
1 → 2	A	4	6	8
1 → 3	B	2	3	10
1 → 4	C	6	8	16
2 → 4	D	1	2	3
3 → 4	E	6	7	8
3 → 5	F	6	7	14
4 → 6	G	3	5	7
4 → 7	H	4	11	12
5 → 7	I	2	4	6
6 → 7	J	2	6	10 | (a) Construct the project network diagram by identifying task dependencies. Find the expected duration and variance for each activity what is the expected project length. (b) Calculate the expected time and variance using the PERT formula. (c) Find the probability that the project is: 1) Completed in 19 days. If the probability is less than 20%, find the probability of completing it in 24 days.	8	3	L4

| | **PART C** | | |

| 19 | a) Evaluate the suitability of PERT and CPM techniques for managing large-scale industrial projects with varying levels of activity uncertainty. Compare their characteristics, underlying assumptions, and applicability to real-world scenarios such as construction, manufacturing, or IT system implementation. Justify which method would be more effective for a project with high variability in task durations and provide reasons based on project objectives and risk management considerations. | 6 | 4 | L5 |

b) A whole sale company has a three warehouses from which supplies are drawn to four retail customers. The company deals in a single product, the supplies of which at each warehouse are: 20,28,17 and demand are 15,19,13,18 respectively.

Conveniently total supply at the warehouses is equal to total demand from the customers.

The following table gives the transportation costs per unit shipment from each warehouse to each customer:

Warehouse	Customer				Supply
	C1	C2	C3	C4	
W1	3	6	8	5	20
W2	6	1	2	5	28
W3	7	8	3	9	17
Demand	15	19	13	18	

Interpret & assess the VAM based initial allocation provided—identify which warehouse market pairings were chosen and assess how supply and demand constraints were addressed so as to minimize overall transportation cost.

| 6 | 4 | L5 |

c) Check the Optimality by MODI method to assess, what modifications is to be made, if the solution is not strictly optimal.

| 10 | 4 | L5 |

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FIRST/SECOND SEMESTER MBA DEGREE SEMESTER END EXAMINATIONS SEPTEMBER 2025

Course:	CORPORATE STRATEGY		
Course Code:	MBA205	Program:	MBA
Max Marks:	100	Duration:	03 Hours

Instructions:

1. Part A and Part C (Case Study) are Compulsory.

2. Part B questions are choice based.

Q.No.	Questions	Marks	CO	RBTL
	PART A			
1	Outline the relationship between company's strategy and business model.	5	1	L2
2	Relate how Industry Analysis useful to the business entity? Infer with examples	5	1	L2
3	Explain the strategic analysis tools and techniques.	5	1	L2
4	Outline the characteristics of mission statement.	5	1	L2
5	Interpret the issues in strategy implementation.	5	1	L2
6	Extend the barriers in strategic evaluation.	5	1	L2
	PART B			
	Module 1			
7	The strategic management process is a systematic approach used by organizations to achieve their goals. Identify the different phases of strategic management process with neat sketch.	8	2	L3
	OR			
8	A chief strategy officer (CSO) has primary responsibility for strategy formulation and management. As a CSO, plan the Challenges that would encounter for effective strategic management initialization in the company.	8	2	L3
	Module 2			
9	Porter's five forces is a model that helps businesses analyze the competitive intensity and attractiveness of an industry. Identify the five key forces that shape business competition within an industry.	8	2	L3
	OR			
10	Is critical success factors / Key Success Factors are essential elements or activities that an organisation to achieve its strategic objectives? Choose the different key success factors of an organisation with examples.	8	2	L3

	Module 3			
11	Is McKinsey 7's framework is a strategic management model that identifies an organization's effectiveness and success? Build its components.	**8**	**3**	**L3**
	OR			
12	Is GE 9-cell matrix is a strategic tool used to analyse a company's portfolio of business units? Organize its components with neat sketch.	**8**	**3**	**L3**
	Module 4			
13	Does Porter's generic strategies achieve a competitive advantage for a business? Categorize the different approaches of generic competitive strategies with neat sketch.	**8**	**3**	**L4**
	OR			
14	"A vision statement outlines an organization's aspirations for the future, while a mission statement details its current purpose and objectives." Analyse the benefits of strategic vision statement of the company.	**8**	**3**	**L4**
	Module 5			
15	Does strategy implementation is a challenging process? Distinguish between Strategy Formulation and Strategy Implementation.	**8**	**3**	**L4**
	OR			
16	linking a strategy-supportive culture involves aligning an organisation's values, beliefs, and behaviours with its strategic goals. Inspect the elements of creating a strategy-supportive culture.	**8**	**3**	**L4**
	Module 6			
17	Balance score card is a strategic management tool that translate an organization's vision into actionable goals. With this connection analyse the significance and limitations of the BSC.	**8**	**4**	**L4**
	OR			
18	Strategy evaluation process is a crucial process that assesses how well a chosen strategy is achieving its intended goals and objectives. Examine the importance of strategic evaluation.	**8**	**4**	**L4**
	PART C			
19	Udyog Limited, India, and Suzuki Motor Corporation (Suzuki), Japan. Do Not Copy or Post Maruti aimed to make cars available for every individual, family, need, budget, and lifestyle Electric Car Scenario in India In 2016, three different types of cars were operating in India: conventional fossil fuel cars, hybrid cars, and fully electric vehicles. The annual Indian car market size was around 2.5 million passenger cars, but the market for e-cars and other electric vehicles was very limited. Tata Motors Limited (Tata), another major Indian car manufacturer, was in the process of launching e-cars and had already proposed the concept of the Tiago EV and the electric Nano. For example, Mahindra offered two electric commercial vehicles, the eSupro passenger and cargo van, and the e-Alfa mini rickshaw; Tata offered the e- Starbus; and Ashok Leyland, another automobile company, offered the circuit series of electric buses. Many multinational automakers, such as Nissan and Toyota Motor Corporation (Toyota), also had advanced technology in this sphere, but their products			

were expensive.

Automobile Policy in India

The automotive industry accounted for 7.1 per cent of India's gross domestic product and employed around 32 million people, directly and indirectly. This industry was a major consumer of crude oil, but with its poor oil reserves, India depended mainly on imported oil. Its high import bill was one reason for the country's bourgeoning trade deficit. A significant movement toward e-cars, along with a shift toward green energy sources, would not only help the country control pollution levels but also generate significant savings in oil import.

Conventional Cars

Conventional cars had internal combustion engines, which ran on fossil fuels such as gasoline or diesel. The engines were operated by burning the fuel. The heat generated from combustion caused expansion of gases, which pushed the pistons that turned the wheels. However, the combustion or burning of fuel emitted carbon dioxide and other harmful gases, which contributed to air pollution and global warming.

Electric Cars

Electric cars did not have internal combustion engines. These vehicles had electric motors, which were run using the energy stored in batteries. The energy stored in batteries was released electrochemically. In such a process, there was no burning of fuel, and hence, no emission of any kind, making such cars pollution-free. There were other important differences between the two types of cars. Because of their having fewer moving parts, electric cars required less maintenance, also made these cars more reliable In addition to lower maintenance costs, these cars were also more fuel cost efficient.

Hybrid Cars

Hybrid cars were a combination of traditional fossil fuel powered cars and electric cars that comprised two engines—a combustion engine and an electric motor. Combustion engines in these cars were run by burning petrol or other fossil fuels, whereas their electric motors used stored energy from an electric battery that could be charged when the car was run on fossil fuel. Hybrid cars had low emissions compared to conventional cars.

a) Appraise Maruti Suzuki with reference to PEST analysis framework.	6	4	L5
b) Does automobile companies in India shifting manufacturing of fossil fuel based cars to electric cars? Evaluate the current condition of automobile Industry in India.	6	4	L5
c) Compare the key features between conventional cars, electric cars and hybrid cars.	10	4	L5

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FIRST/SECOND SEMESTER M.TECH DEGREE SEMESTER END EXAMINATIONS

SEPTEMBER 2025

Course:	**MECHANICS OF COMPOSITE MATERIALS**		
Course Code:	**MME206**	**Program:**	**M.Tech in Machine Design**
Max Marks:	**100**	**Duration:**	**03 Hours**

Note:

1. Answer ONE question from each MODULE and Question 1 & 2 is compulsory.

2. Any missing Data can be suitably assumed.

Q. No.		Module - 1	Marks	CO	RBTL
Q1	**a**	List the difference between thermoset and thermoplastic matrices.	08	1	L1
	b	Illustrate with an example the purpose and how corrosion resistance is a key factor in material selection.	12	1	L3
		Module – 2			
Q2	**a**	Discuss in detail the restrictions imposed on elastic constants in composite materials.	10	2	L2
	b	In a unidirectional glass/epoxy lamina with a 70% fiber volume fraction, given that E_f = 85 GPa, v_f = 0.2, E_m = 3.4 GPa and v_m = 0.3. Find the, i) Longitudinal elastic modulus ii) Transverse Young's modulus iii) Ratio of the load taken by the fibers to that of the composite iv) Major and minor Poisson's ratio v) In-plane shear modulus	10	2	L4
		Module – 3			
Q3	**a**	Find the compliance and stiffness matrix for a graphite/epoxy lamina. The material properties are given as E_1 = 181 GPa, E_2 = 10.3 GPa, E_3 = 10.3 GPa, ν_{12} = 0.28, ν_{23} = 0.60, ν_{13} = 0.27, G_{12} = 7.17 GPa, G_{23} = 3.0 GPa, G_{31} = 7.00 GPa	10	2	L4
	b	Derive a stiffness matrix and reduced compliance matrix using Hooke's Law for Specially Orthotropic Material.	10	2	L3
		OR			
Q4	**a**	Derive the relationship of Compliance and Stiffness Matrix to Engineering Elastic Constants of a Lamina.	10	2	L3

	b	For a graphite/epoxy unidirectional lamina, the properties of unidirectional graphite/epoxy lamina are E_1 = 181 GPa, E_2 = 10.3 GPa, ν_{12} = 0.28, G_{12} = 7.17 GPa. Find the following i) Compliance matrix ii) Minor Poisson's ratio iii) Reduced stiffness matrix iv) Strains in the 1–2 coordinate system if the applied stresses are σ_1 = 2MPa, σ_2 = -3MPa, τ_{12} = 4MPa	10	2	L4
		Module – 4			
Q5	a	Discuss in detail the different Strength Failure Theories of Angle Lamina.	10	3	L3
	b	Find the maximum value of S > 0 if a stress of σ_x = 2S, σ_y = –3S, and τ_{xy} = 4S is applied to the 60° lamina of graphite/epoxy. Use maximum stress failure theory and the properties of a unidirectional graphite/epoxy lamina are $(\sigma_1^T)_{ult}$ = 1500MPa, $(\sigma_1^c)_{ult}$ = 1500MPa, $(\sigma_2^T)_{ult}$ = 40MPa, $(\sigma_2^c)_{ult}$ = 246MPa, $(\tau_{12})_{ult}$ = 68MPa.	10	3	L4
		OR			
Q6	a	Discuss in detail the theory on First Ply Failure and Last Ply Failure in composite materials.	8	3	L2
	b	Determine the failure occurance in a unidirectional lamina subjected to a longitudinal tensile stress, according to the maximum stress criterion.	12	3	L4
		Module – 5			
Q7	a	Differentiate between pultrusion and filament winding in terms of product geometry, reinforcement alignment, and typical end-use products.	8	3	L2
	b	Discuss how resin flows in Resin Transfer Molding (RTM) and how mold design affects the final part quality.	12	3	L3
		OR			
Q8	a	Explain with neat sketch the process of vacuum bag molding. List the advantages and applications.	10	3	L2
	b	Analyse the advantages and limitations of Vacuum-Assisted Resin Transfer Molding (VARTM) over traditional RTM	10	3	L3