

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS INSTITUTION)

MBA I Year I Semester (R24) Supplementary End Semester Examinations – December 2025**MANAGEMENT PERSPECTIVES AND ORGANIZATIONAL BEHAVIOR****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 why Corporate Social Responsibility is important in India | 10M | 1 | 2 |
| OR | | | | |
| Q.1(B) | Explain the principles of ethics. | 10M | 1 | 2 |
| Q.2(A) | List any four differences between formal and informal organizations? | 10M | 2 | 4 |
| OR | | | | |
| Q.2(B) | Describe the steps involved in the controlling process. | 10M | 2 | 3 |
| Q.3(A) | Explain the factors influencing perception. | 10M | 3 | 4 |
| OR | | | | |
| Q.3(B) | Discuss the Porter and lawler theory of motivation | 10M | 3 | 2 |
| Q.4(A) | Elaborate two dimensional Managerial grid | 10M | 4 | 6 |
| OR | | | | |
| Q.4(B) | Critically analyze types of conflicts, its consequences and explain the ways to manage conflicts? | 10M | 4 | 4 |
| Q.5(A) | Discuss the factors contributing towards creating sustainable culture? | 10M | 5 | 2 |
| OR | | | | |
| Q.5(B) | Explain coping strategies to overcome stress? | 10M | 5 | 3 |
| Q.6 | Case Study | 10M | 2 | 5 |

Ragni is a chief executive officer of Peak Electronics, faced a difficult decision. Her company was a leader in making parts for standard cassette and reel-to-reel tape recorders. **Ragni** had watched with some misgivings as digital technology hit the market in the form of compact disc players, and she had to decide whether to lead Peak into the digital age. Even though digital tape players were encountering legal hurdles in the American market, they were starting to take hold in Japan and Europe. Was America—and Peak—ready for them?

Ragni had plenty of help in making the decision. First she met with the company's marketing division. Everyone had an opinion. Some predicted that every audio component would be digital by the turn of the century; others believed the popularity of even compact disc players was already waning. Everyone agreed that they needed time to conduct surveys, gather data, and find out what products the

public really wanted and how much they would be willing to pay for them.

The people in research and development had a different approach. They were tired of making small improvements in a mature and perfected product. They had been reading technical material about digital tape, and they saw it as an exciting new technology that would give an innovative company a chance to make it big. Time was of the essence, they insisted. If Peak was to become an important supplier of parts for the new decks, it had to have the components ready. Delay would be fatal to the product.

A meeting of the vice presidents produced a scenario with which **Ragni** was all too familiar. Years ago these executives had discovered that they could not outargue one another in these meetings, but they had faith in their staffs' abilities to succeed where they had failed. Before **Ragni** even walked into the room, she knew what their recommendation would be: to create a committee of representatives from each division and let them thoroughly investigate all aspects of the decision. Such an approach had worked before, but **Ragni** was not sure it was right this time.

Desperate to make the decision and get it out of her mind, **Ragni** mentioned it to her fifteen-year-old son, who, it turned out, knew everything about digital tape. In fact, he told her, one of his friend—the rich one—had been holding off on buying a new tape deck so that he would be on the cutting edge of digital recording. "It's gotta happen, Mom," her son said. "People want it."

Intellectually, **Ragni** believed he was right. The past thirty years had shown that Americans had an insatiable appetite for electronic gadgets and marvels. Quadraphonic sound and video discs were the only exceptions she could think of to the rule that if someone invented an improved way of reproducing images or sound, someone else would want to buy it.

But intuitively, **Ragni** was not so sure. She had a bad feeling about the new technology. She believed the record companies, which had lost the battle to tape manufacturers, might get together with compact disc makers and audio equipment manufacturers to stop the digital technology from entering the American market. So far, no American company had invested substantially in the technology, so no one had an interest in funding the legal battle to remove the barriers to the new machines.

Exhausted, **Ragni** went to bed. She hoped that somehow her subconscious mind would sort out all the important factors and she would wake up knowing the right decision.

Case Questions

1. What sources of information and opinion about the new technology seem most reliable?
2. If you were **Ragni**, what would your next step be?

END

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS INSTITUTION)**MBA I Year I Semester (R24) Supplementary End Semester Examinations December- 2025**
MANAGERIAL ECONOMICS AND BUSINESS ENVIRONMENT

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) | Explain the concept of scarcity. How does it cause economics to be a relative discipline | 10M | 1 | 2 |
| OR | | | | |
| Q.1(B) | Use the concept of opportunity cost in relation to optimisation in economics | 10M | 1 | 3 |
| OR | | | | |
| Q.2(A) | What is Elasticity of Supply? Explain the concept and factors on which it depends on | 10M | 2 | 2 |
| OR | | | | |
| Q.2(B) | What do you understand by law of demand? Explain its assumptions and factors of demand | 10M | 2 | 2 |
| Q.3(A) | Explain pricing policies and objectives. | 10M | 3 | 2 |
| OR | | | | |
| Q.3(B) | Distinguish between monopoly and monopolistic competition. | 10M | 3 | 4 |
| Q.4(A) | Discuss the importance of Business Environment Analysis. | 10M | 4 | 2 |
| OR | | | | |
| Q.4(B) | Discuss the four key instruments that are part of monetary and fiscal policy of a nation. | 10M | 4 | 2 |
| Q.5(A) | Analyse the causes of inflation in an economy | 10M | 5 | 4 |
| OR | | | | |
| Q.5(B) | Discuss the TRIPs and TRIMs agreement of WTO. | 10M | 5 | 2 |
| Q.6 | <u>Case study</u> | 10M | 3 | 4 |

In the period from 2003 to 2006, U.S. railroads faced increasing complaints about speed of delivery. By 2006, the chairman of the U.S. Surface Transportation Board (the body responsible for overseeing U.S. railroads) requested that each of the seven major

U.S. railroads submit a plan for how it intended to deal with service bottlenecks. Part of the problem, according to industry observers, arose because the industry downsized too much in the 1980s and 1990s, selling or abandoning 55,000 miles of track. Concerns over the quality of rail services and how they relate to the amount of track a railroad employ might make you wonder how a railroad's costs depend on these factors.

**A 10 Percent Increase in
Cost**

Changes Total Variable

| | |
|--------------------|---------|
| Volume of output | + 3.98% |
| Track mileage | - 2.71% |
| Speed of service | - 0.66% |
| Price of fuel | + 1.90% |
| Price of labor | + 5.25% |
| Price of equipment | + 2.85% |

Analyse the following questions

1. Would a railroad's total variable costs decrease as it adds track?
2. If so, at what rate?
3. Would faster service cause an increase or decrease in costs?

*****END*****

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MBA I Year I Semester (R24) Supplementary End Semester Examinations, December 2025
DESIGN THINKING

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) | Explain the plan to move through the Design Thinking stages, from understanding the problem to testing solutions. | 10M | 1 | 2 |
| | OR | | | |
| Q.1(B) | Develop a plan to capitalize on one of the opportunities identified in your personal SWOT analysis. | 10M | 1 | 2 |
| Q.2(A) | Describe the scenario where all three components of empathy are utilized to address a problem. | 10M | 2 | 2 |
| | OR | | | |
| Q.2(B) | “How might we Statements” plays a very important role in Design thinking. Comment. | 10M | 2 | 2 |
| Q.3(A) | Brainstorming is the fun part of the design thinking process. Comment. | 10M | 3 | 3 |
| | OR | | | |
| Q.3(B) | Comment on the creative lessons you have learned from Elon Musk. | 10M | 3 | 3 |
| Q.4(A) | Describe different types of Market testing. | 10M | 4 | 2 |
| | OR | | | |
| Q.4(B) | Market testing is a crucial step in design thinking. Comment. | 10M | 4 | 3 |
| Q.5(A) | Explain the importance of Reflective thinking. | 10M | 5 | 2 |
| | OR | | | |
| Q.5(B) | What are the key differences between a team-based and solo approach to solving problems in Design Thinking? | 10M | 5 | 2 |
| Q.6 | CASE STUDY Bengaluru, 2010. The business was getting battered on two fronts. First was the inability to expand the frontiers of the idli-dosa venture beyond Bengaluru. <u>PC Musthafa</u> knew that the failure to do so had nothing to do with the product. In fact, it was the superior quality of the batter that made iD Fresh Food—the venture started by Musthafa and his cousins from a 50 square feet kitchen in 2005—a name to reckon with in the software capital of India. Back in 2005, the brothers were convinced that batter was the best business option for them. There was a pressing need and huge demand for superior quality of batter. The supply, though, was unreliable and unorganised. The kirana background of the four cousins, who ran a pocket-sized grocery store in Indiranagar in Bengaluru, and the enterprising mindset of the maverick IT professional—Musthafa had a few job stints in Europe, the Middle East and India, including Citibank in Dubai and Intel in Bengaluru—prodded them to take a stab at the | 10M | 5 | 4 |

problem. They made a humble beginning with a grinder, mixer, sealing machine, weighing scale and a second-hand Scooty, and ended the first year with a modest collection of ₹8 lakh. Over the next three years, the revenue jumped to ₹50 lakh. The business was moving at a brisk pace. Then came the big Chennai experiment in 2009. iD was selling around 3,500 kg of batter in Bengaluru, and the aspiration was to go to the Mecca of idli-dosa: Chennai. Musthafa moved swiftly, invested all the savings of the company—₹20 lakh—opened a plant in Chennai and launched batter at ₹40 per kilo. The move flopped. Rivals were selling batter at half the rate, some even lower than ₹20 per kg. “Forget profit, their MRP was not even the cost of my raw material,” rues Musthafa, who didn’t want to play the price game. After over a year or so, iD exited a profusely bleeding Chennai market. The bombing of the Chennai experiment had another devastating collateral damage. iD started losing ground on the home turf, Musthafa didn’t have any capital to expand, and the option of taking a bank loan was never an option to begin with. Musthafa explains. “We don’t pay interest, we don’t take interest. It’s against our ethical values,” he says. EMIs, he adds, are one more reason to shun any kind of loan, and kill creativity in individuals and businesses.

Questions:

1. What is the competitive uniqueness of iD Fresh Food?
2. Suggest the sustaining strategies for iD Fresh Food.

END

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
MBA I Year I Semester (R24) Supplementary End Semester Examinations -December 2025
Accounting for Managers

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 Accounting. Explain the concepts and conventions of accounting | 10M | 1 | 2 |

OR

Q.1(B) **Enter the following transactions in Journal2023**

Jan-1st: Started business with cash Rs. 10,000.
2nd: Deposited into bank Rs. 9,000.
3rd: Purchased Machinery for Rs. 5,000 and paid by cheque.
15th: Paid installation charges of machinery Rs. 100.
20th: Purchased timber from Naveen of the list price of Rs. 2,000. He allowed 10% Trade discount.
23rd: Furniture costing Rs. 500 was used in furnishing the office.
25th: Sold furniture to Naresh of the list price of Rs. 1,000 and allowed him 5% trade discount.
28th: Received a cheque from Naresh for Rs. 930 in full settlement and sent the cheque to bank.
29th: Paid by cheque to Naveen in full settlement Rs. 1,750.
31st: Paid wages Rs. 350 and Rent Rs. 200.

10M 1 4

Q.2(A) Classify Capital and Revenue Expenses with example

10M 2 4

OR

Q.2(B) The following is the Trial Balance of XYZ Company Ltd. as on 31.12.2011. Prepare Income Statement for the year ended 31.12.2011 and the Balance sheet as on that date:

2 4

| Particulars | Dr. (Rs.) | Cr. (Rs.) |
|---------------------------------------|-----------|-----------|
| Ordinary Share Capital | | 3,60,000 |
| 6% Debentures | | 1,50,000 |
| Leasehold Premises | 1,50,000 | |
| Salaries | 56,700 | |
| Carriage Inwards | 9,300 | |
| Insurance | 1,560 | |
| Motor Lorry | 33,000 | |
| Sales | | 12,53,700 |
| Sundry Creditors | | 60,360 |
| Profit and Loss Appropriation Account | | 3,960 |
| Postage and Telegram | 6,330 | |
| Machinery | 2,40,000 | |
| Rents and Taxes | 5,700 | |
| Purchases | 5,39,200 | |

10M

| | | |
|------------------------|------------------|------------------|
| Director's Fees | 9,390 | |
| Office Expenses | 10,170 | |
| Bad Debts | 1,830 | |
| Bad Debts Reserve | | 4,200 |
| Bills Payable | | 46,000 |
| Discount | | 8,510 |
| Furniture and Fixtures | 8,760 | |
| Goodwill | 90,000 | |
| Opening Stock | 1,05,000 | |
| Wages | 4,56,900 | |
| Interest on Debentures | 4,500 | |
| Cash at Bank | 1,02,390 | |
| Sundry Debtors | 57,000 | |
| | 18,86,730 | 18,86,730 |

Adjustments:

1. Provide interest on debentures for half year.
2. Maintain bad debts reserve at 5% on debtors.
3. Unexpired Insurance amounted to Rs. 500.
4. Depreciate leasehold by 5%, machinery by 10%, and motor lorry by 20%.
5. Out of profit, transfer Rs. 50,000 to reserve fund and a dividend of 15% to be declared on ordinary share capital.
6. The closing stock is valued at Rs. 1,05,810.
7. Corporate Dividend Tax is 10%.

Q.3(A) What is meant by Ratio Analysis? Explain its advantages and limitations. 10M 3 2

OR

Q.3(B) Cash Rs. 70,000, Debtors Rs. 30,000. Machinery Rs. 60,000 Cash at Bank Rs. 50,000. Inventory Rs. 40,000. Current Liabilities Rs. 1,50,000. Sales Rs 6,50,000. Cost of Goods sold Rs. 1,30,000. Gross Profit 1,20,000. Net Profit Rs. 20,000. calculate 1) Gross Profit Ratio 2) Current Ratio 3) Cash Ratio 4) Liquid Ratio 5) Net Profit Ratio 6) Absolute quick ratio 10M 3 2

Q.4(A) What is meant by Cost Volume Profit Analysis? Explain its application in managerial decision making. 10M 4 4

OR

Q.4(B) The following data is available from the records of VK Ltd.: 4 4

| Date | Sales Rs in Lakhs | Total Cost Rs in Lakhs |
|------|-------------------|------------------------|
| 2023 | 150 | 120 |
| 2024 | 200 | 150 |

10M

Calculate:

- a) The P/V ratio and total fixed expenses.
- b) The break-even sales.
- c) Sales required to earn a profit of Rs. 70 lakh.

| | | | | |
|--------|--------------------------------------------------------------------------|-----|---|---|
| Q.5(A) | Describe the role of Computerized Accounting in a modern business world. | 10M | 5 | 3 |
|--------|--------------------------------------------------------------------------|-----|---|---|

OR

| | | | | |
|--------|--------------------------------------------------------------------|-----|---|---|
| Q.5(B) | Distinguish between manual accounting and computerized accounting. | 10M | 5 | 4 |
|--------|--------------------------------------------------------------------|-----|---|---|

Q.6

Case Study

From the following Balance Sheet of RR & Co. Ltd., you are required to prepare: (a) Schedule of Changes in Working Capital (b) Fund Flow Statement (c) Fund from Operations.

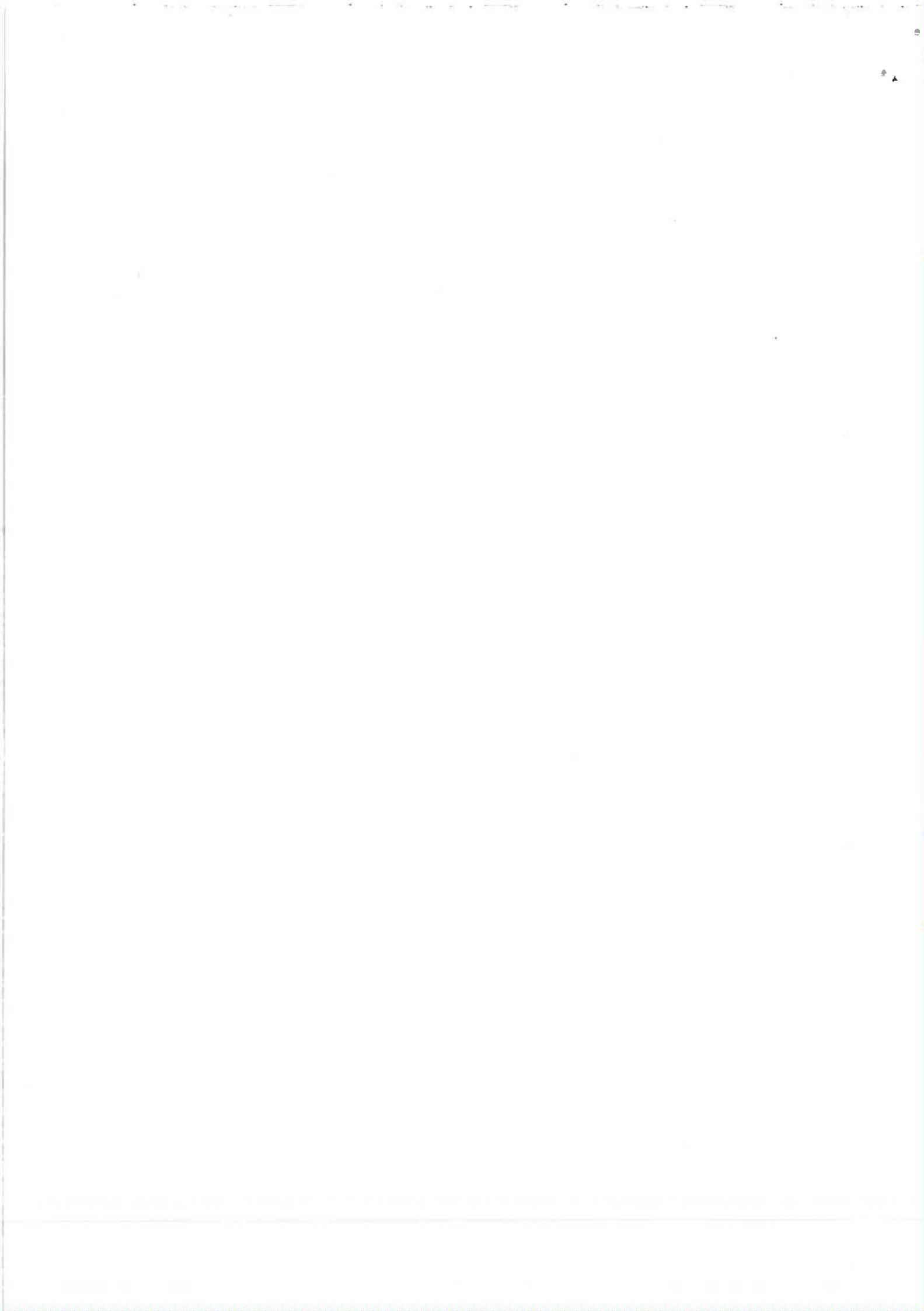
Additional Information

| Liabilities | 2002 Rs. | 2003 Rs. | Assets | 2002 Rs. | 2003 Rs. |
|------------------------------|-----------------|-----------------|------------------|-----------------|-----------------|
| Equity Capital | 1,00,000 | 1,00,000 | Goodwill | 6,000 | 6,000 |
| General Reserve | 14,000 | 18,000 | Patents | 6,000 | 6,000 |
| Profit & Loss A/c | 16,000 | 13,000 | Building | 50,000 | 46,000 |
| Bank Overdraft | 3,000 | 2,000 | Machinery | 27,000 | 26,000 |
| Sundry Creditors | 5,000 | 3,400 | Investments | 10,000 | 11,000 |
| Bills Payable | 1,200 | 800 | Stock | 20,000 | 13,400 |
| Provision for Taxation | 10,000 | 11,000 | Bills Receivable | 12,000 | 13,200 |
| Proposed Dividend | 6,000 | 7,000 | Debtors | 18,000 | 19,000 |
| Provision for Doubtful Debts | 400 | 600 | Cash at Bank | 6,600 | 15,200 |
| Total | 1,55,600 | 1,55,800 | Total | 1,55,600 | 1,55,800 |

10M 3 5

1. Depreciation Charged on Machinery Rs. 4,000 and on Building Rs. 4,000.
2. Provision for Taxation of Rs. 19,000 was made during the year 2003.
3. Interim Dividend of Rs. 8,000 was paid during the year 2003.

*****END*****



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(UGC-AUTONOMOUS)

**MBA I Year I Semester (R24) Supplementary End Semester Examinations,
December2025****BUSINESS STATISTICS FOR MANAGERS USING SPSS****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) Suppose Procter & Gamble sells about 20 million bars of soap per week, but the demand is not constant and production management would like to get a better handle on how sales are distributed over the year. Let the following sales figures given in units of million bars represent the sales of bars per week over one year. Construct a histogram to represent these data. What do you see in the graph that might be helpful to the production (and sales) people?

17.1 19.6 15.4 17.4 15.0 18.5 20.6 18.4
20.0 20.9 19.3 18.2 14.7 17.1 12.2 19.9
18.7 20.4 20.3 15.5 16.8 19.1 20.4 15.4
20.3 17.5 17.0 18.3 13.6 39.8 20.7 21.3
22.5 21.4 23.4 23.1 22.8 21.4 24.0 25.2
26.3 23.9 30.6 25.2 26.2 26.9 32.8 26.3
26.6 24.3 26.2 23.8

10 1 2

Create Histogram for the frequency distribution using SPSS.

OR

The following are some of the particulars of the distribution of weight of boys and girls in class. Find the Standard deviation of the combined data.

| | Boys | Girls | 10M | 1 | 4 |
|--------|-------------|-------|-------|---|---|
| Q.1(B) | Number | 100 | 50 | | |
| | Mean Weight | 60 Kg | 45 Kg | | |
| | Variance | 9 | 4 | | |

Q.2(A) Three machines A, B and C manufacture respectively 0.4, 0.5 and 0.1 of the total production. The percentage of defective items produced by A, B and C is 2, 4 and 1 per cent respectively. For an item chosen at random, what is the probability that it is defective?

10M 2 2

OR

Q.2(B) In sampling a large number of parts manufactured by a machine, the mean number of defectives in a sample of 20 is 2. Out of 1000 such samples, how many would be expected to contain atleast 3 defective parts. Verify the same in SPSS.

10M 2 2

Q.3(A) Ten competitors in a musical test are judged by three judges A, B and C and ranked as follows:

| | | | | | | | | | | |
|---|---|---|---|----|---|----|---|----|---|---|
| A | 1 | 6 | 5 | 10 | 3 | 2 | 4 | 9 | 7 | 8 |
| B | 3 | 5 | 8 | 4 | 7 | 10 | 2 | 1 | 6 | 9 |
| C | 6 | 4 | 9 | 8 | 1 | 2 | 3 | 10 | 5 | 7 |

10M 3 4

Using the coefficient of correlation discuss which pair of judges has approached nearest to common likings of music. Verify the same in SPSS.

OR

Q.3(B) A corporation owns several companies. The strategic planner for the corporation believes dollars spent on advertising can to some extent be a predictor of total sales dollars. As an aid in long-term planning, she gathers the following sales and advertising information from several of the

| Advertising | Sales |
|-------------|-------|
| 12.5 | 148 |
| 3.7 | 55 |
| 21.6 | 338 |
| 60.0 | 994 |
| 37.6 | 541 |
| 6.1 | 89 |
| 16.8 | 126 |
| 41.2 | 379 |

10M 3 2

companies for 2009 (\$ millions).

Enter the data in SPSS and perform the appropriate analyses to answer the questions below.

- State the null and alternative hypotheses.
- State a research question for the data.
- Is the predictor significant?
- Write a regression equation for the data.

Q.4(A) A clinical psychologist wanted to investigate the relative effectiveness of cognitive-behavioral therapy and psychoanalytic therapy on depression. Thirty people suffering from depression were randomly assigned to receive one of the two therapies, with 15 people receiving cognitive-behavioral therapy and

10M 4 4

15 receiving psychoanalytic therapy. After two months of therapy, the depression score for each participant was recorded. The independent variable in this study is the type of therapy (cognitivebehavioral, psychoanalytic) and the dependent variable is depression, with higher scores representing greater depression levels (the range of possible scores on the depression scale is from(10 to 70).

The data for the 30 participants are presented in Figure. The participants who received psychoanalytic therapy are assigned a "1" and those who received cognitive-behavioral therapy are assigned a "2."

| Participant | Therapy | Depression | Participant | Therapy | Depression |
|-------------|---------|------------|-------------|---------|------------|
| 1 | 1 | 57 | 16 | 2 | 47 |
| 2 | 1 | 61 | 17 | 2 | 42 |
| 3 | 1 | 67 | 18 | 2 | 59 |
| 4 | 1 | 63 | 19 | 2 | 37 |
| 5 | 1 | 51 | 20 | 2 | 35 |
| 6 | 1 | 55 | 21 | 2 | 42 |
| 7 | 1 | 45 | 22 | 2 | 38 |
| 8 | 1 | 62 | 23 | 2 | 49 |
| 9 | 1 | 41 | 24 | 2 | 61 |
| 10 | 1 | 36 | 25 | 2 | 43 |
| 11 | 1 | 55 | 26 | 2 | 47 |
| 12 | 1 | 57 | 27 | 2 | 49 |
| 13 | 1 | 70 | 28 | 2 | 37 |
| 14 | 1 | 62 | 29 | 2 | 41 |
| 15 | 1 | 58 | 30 | 2 | 48 |

Enter the data in SPSS and perform the appropriate analyses to answer the questions below

- State the null and alternative hypotheses.
- Is there a difference in the average depression levels between those who received cognitive-behavioral therapy and those who received psychoanalytic therapy?
Test at $\alpha = 0.05$.

OR

Q.4(B)

A marketing firm conducted a study to assess consumer preferences of differently priced coffees. The leading brand in each category of \$3-, \$6-, and \$10-priced coffee (for 12 oz. of ground coffee) was selected. One hundred and fifty people tasted the three coffee brands (without knowing the cost of each) and indicated which coffee they preferred. The preferences of the 150 participants are shown in Figure:

10M 4 4

| \$3 brand | \$6 brand | \$10 brand |
|-----------|-----------|------------|
| 30 | 62 | 58 |

- State the null and alternative hypotheses.
- Is there a preference for one (or more) of the coffees? Test at $\alpha = 0.05$. (SPSS)

Q.5(A)

A medical researcher wanted to investigate the effect of different pain medications on people suffering from migraine headaches. Twenty-one people who had recently seen a doctor for migraine headaches were randomly assigned to receive one of three pills: drug A, drug B, or a placebo. While taking the appropriate pill, each participant recorded their pain level three times a day at regular intervals for one week (pain was recorded on a 1 to 10 scale, with higher scores indicating greater pain). The average pain level over the one-week period was calculated for each participant and is reported in Figure

10M 5 2

| Drug | Pain |
|------|----------------------------------------|
| A | 5.2, 4.1, 5.8, 6.85, 4.75, 1.75, 4 |
| B | 3.05, 6.15, 5.5, 6.15, 1.85, 6.4, 3.1 |
| C | 8.15, 7.15, 6.2, 7.85, 9.45, 9.25, 6.3 |

Enter the data in SPSS and perform the appropriate analyses to answer the questions below. Name the variables **drug** and **pain**.

- State the null and alternative hypotheses.
- Is there a significant difference in the reported pain levels between the groups? Test at $\alpha = 0.05$.

OR

Q.5(B)

A researcher investigated the impact of gender and cell phone usage on

10M 5 4

driving performance. Each of the 24 people (12 males and 12 females) who agreed to participate in the study drove a car on a closed course where their driving accuracy was assessed (driving accuracy was measured on a 0 to 50 scale, with higher scores indicating better driving performance). While driving on the closed course, half of the participants (6 males and 6 females) spoke on a cell phone, while the other half did not. The data are provided in Figure

| Gender | Cellphone | Driving score | Gender | Cellphone | Driving score |
|--------|-----------|---------------|--------|-----------|---------------|
| 1 | 1 | 34 | 2 | 1 | 35 |
| 1 | 1 | 29 | 2 | 1 | 32 |
| 1 | 1 | 38 | 2 | 1 | 27 |
| 1 | 1 | 34 | 2 | 1 | 26 |
| 1 | 1 | 33 | 2 | 1 | 37 |
| 1 | 1 | 30 | 2 | 1 | 24 |
| 1 | 2 | 45 | 2 | 2 | 48 |
| 1 | 2 | 44 | 2 | 2 | 47 |
| 1 | 2 | 46 | 2 | 2 | 40 |
| 1 | 2 | 42 | 2 | 2 | 46 |
| 1 | 2 | 47 | 2 | 2 | 50 |
| 1 | 2 | 40 | 2 | 2 | 39 |

For gender, 1 = "male" and 2 = "female" For cell phone, 1 = "spoke on cell phone" and 2 = "didn't speak on cell phone."

Enter the data in SPSS and perform the appropriate analyses to answer the questions below. Name the variables gender, cellphone, and driving score.

- State the null and alternative hypotheses for each test of interest.
- Test for main effects of gender, cell phone use, and for a gender * cellphone interaction (use for $\alpha = 0.05$ each test). Which tests, if any, are significant? Which tests, if any, are not significant?

Q.6

Case Study

Perform the appropriate test for the given data. This database is composed of fictitious data created to explore how the bank might reduce the number of loan defaults. The database consists of 850 past and prospective customers.

Questions:

- How many components (*latent* variables) might be identified among the 10 *manifest* variables that are being analyzed.
- If components are identified, how might they be interpreted?

10M 5 5

END