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1M201

Roll No. \_\_\_\_\_

Total No. of Pages: **3****1M201****MBA I - Sem. (Main & Back) Exam., 2022****M-101 Fundamentals of Management****Time: 3 Hours****Maximum Marks: 70***Instructions to Candidates:*

- (i) *The question paper is divided in three parts.*
- (ii) *Part A contains 10 questions which are compulsory. Part B contains eight questions out of which five are to be attempted. Part C contains one question which is compulsory.*

1. NIL2. NIL**PART – A****(Word limit 25 only)****[10×2=20]****(All questions are compulsory)**

- Q.1 Highlight various Managerial roles taking example of a manufacturing firm.
- Q.2 What contributions by Kautilya earned him the title of 'The World's first management Guru'?
- Q.3 What is the role of scientific management in the modern era?
- Q.4 Enumerate the various types of Organizational plans.
- Q.5 What are the various factors influencing centralization and decentralization decisions?
- Q.6 What do you mean by staffing? Explain highlighting two advantages of staffing.
- Q.7 'Leader is an effective mentor and coach.' Elaborate with a relevant example.
- Q.8 How directing helps in efficient and effective functioning of the organization? Explain by giving any three points.

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Q.9 Why is coordination considered the essence of management?

Q.10 Comment on management lessons that can be learned from Azim Premji one of India's biggest philanthropists.

### **PART – B**

**(Attempt any five questions)**

**[5×6=30]**

Q.1 Can a manager use tools and techniques from several different perspectives at the same time?

For example: Can a manager use both classical and behavioral perspectives? Give an example of a time when a manager did this and explain, how it enabled him or her to be effective?

Q.2 'He revolutionized thinking on two big subjects, business strategy and economic development, and made a significant contribution to a third, innovation.' In light of the statement, elaborate on CK Prahalad's contribution to management.

Q.3 'One main role of Manager is creating a plan to meet company goals and objectives.' In this context describe strategic planning in business with appropriate examples.

Q.4 'Organization is a mechanism of Management.' What does this statement indicate? Also, explain characteristics of organizing.

Q.5 Enumerate in detail, the selection process which is widely followed in selecting IT professionals? Also highlight the different techniques used in selection process.

Q.6 What are the different Leadership Theories and Styles? Comment on which leadership theory you agree with or would like to follow?

Q.7 Highlighting the process of control, elaborate on the importance and techniques of control in a business organization.

Q.8 Write a detailed note on two business personalities who had transformed corporate India – Dhirubhai Ambani and Ratan Tata.

## **PART – C**

### **(Compulsory)**

**Q.1 Successful v/s Effective Leadership –**

**[20]**

Super Engineering Company was a multi-locational light engineering company. It had manufacturing facilities at Hyderabad, Pondicherry and Indore. The company adopted budgetary system with main emphasis on production and expense budgets. The budget targets used to be set on the basis of analysis of production facilities and production operations. While two units located at Hyderabad and Pondicherry were working properly and were able to meet their budget targets, Indore unit was not able to do so.

Mr P. Manohar was transferred to Indore unit as Plant Manager. He joined the company about eight years back as engineer trainee and became the Assistant Plant Manager at Hyderabad unit, the biggest of the three units. Manohar was very ambitious and a little bit autocratic. He believed in the exercise of authority and control to carry out his instructions. He was high achiever and believed in getting things done. He got quick promotions in the company.

Immediately after joining at Indore unit as Plant Manager, Manohar made preliminary study of the plant and issued instructions to all departments to reduce their expenses by five percent. A fortnight later, he instructed the departments to increase production by ten percent. He also instructed all supervisors to strictly adhere to budgets. He introduced several new reports and watched the operations very closely. He suspended two supervisors in the second month for not meeting the budget targets. Subsequently, two supervisors left the plant.

With all his efforts, the unit was very much on the right track and within six months exceeded the new budgeted production figures by eight percent. On setting the plant right, he was called back at Hyderabad unit as Plant Manager where vacancy arose. However, shortly after he left for Hyderabad, the productivity at Indore unit fell below the earlier level and the budget was again in trouble.

**Case Questions –**

Q.1 Analyse, Manohar's style of leadership at Indore unit.

Q.2 Why was there a drop in productivity at the unit after Manohar left it?

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1M202

Roll No. \_\_\_\_\_

Total No. of Pages: **2****1M202****MBA I - Sem. (Main & Back) Exam., 2022****M-102 Managerial Economics****Time: 3 Hours****Maximum Marks: 70***Instructions to Candidates:*

- (i) *The question paper is divided in three parts.*
- (ii) *Part A contains 10 questions which are compulsory. Part B contains eight questions out of which five are to be attempted. Part C contains one question which is compulsory.*

1. NIL2. NIL**PART – A****(Word limit 25 only)****[10×2=20]****(All questions are compulsory)**

- Q.1 Explain the scarcity definition of Economics.
- Q.2 What is opportunity cost?
- Q.3 Write down various qualitative method of demand forecasting.
- Q.4 Write down the various pricing strategies.
- Q.5 What are different factors of production?
- Q.6 Give two assumptions and two exceptions of Law of Supply.
- Q.7 Explain the relationship between Total cost and Marginal cost? Construct suitable diagrams.
- Q.8 What are the uses of Break Even Analysis in Managerial Decisions?
- Q.9 What are the objectives of demand forecasting?
- Q.10 What are the various methods of measuring National Income? List them.

[1M202]

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**[1440]**

## **PART – B**

**(Attempt any five questions)**

**[5×6=30]**

- Q.1 Discuss the relationship of Managerial Economics with Statistics.
- Q.2 Explain the concept of Elasticity of Demand? How it can be measured? Explain with the help of suitable diagrams.
- Q.3 The output and total cost data of a firm are given below –
- |                |    |    |    |    |    |     |
|----------------|----|----|----|----|----|-----|
| Output (units) | 0  | 1  | 2  | 3  | 4  | 5   |
| Total cost (₹) | 30 | 50 | 66 | 72 | 94 | 130 |
- Compute AVC, AFC, ATC and MC and show them diagrammatically.
- Q.4 Discuss the equilibrium of a firm in long run under perfect competition.
- Q.5 Distinguish between –
- (a) GNP and NNP
  - (b) NNP and NDP
  - (c) Personal Income and Disposable Personal Income
- Q.6 What do you understand by kinked demand curve in Oligopoly?
- Q.7 Explain the Law of Diminishing Marginal Utility with the help of a diagram.
- Q.8 Define consumer surplus and its importance.

## **PART – C**

**(Compulsory)**

- Q.1 What are business cycles? Explain various stages of business cycles (with diagram). [20]
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**1M203**

Roll No. \_\_\_\_\_

Total No. of Pages: **2****1M203****MBA I - Sem. (Main & Back) Exam., 2022****M-103 Operations Management – I****Time: 3 Hours****Maximum Marks: 70***Instructions to Candidates:*

- (i) *The question paper is divided in three parts.*
- (ii) *Part A contains 10 questions which are compulsory. Part B contains eight questions out of which five are to be attempted. Part C contains one question which is compulsory.*

1. NIL2. NIL**PART – A****(Word limit 25 only)****[10×2=20]****(All questions are compulsory)**

- Q.1 Define operations management. Mention two key issues in it.
- Q.2 What do you mean by Demand Forecasting?
- Q.3 What is project life cycle?
- Q.4 What do you understand by selective control? Mention two techniques for it.
- Q.5 Mention the difference between process layout & product layout.
- Q.6 What do you mean by master scheduling?
- Q.7 State the objective of inventory management.
- Q.8 State two application of Control Chart.
- Q.9 What do you mean by facility layout?
- Q.10 What do you understand by EPQ?

**[1M203]****Page 1 of 2****[1440]**

**PART – B****(Attempt any five questions)****[5×6=30]**

- Q.1 “Operations strategies provide the roadmap for achieving the organization objectives.”  
Justify the statement.
- Q.2 What are the different techniques of forecasting? Explain.
- Q.3 List the process design with suitable example.
- Q.4 Explain the aggregate planning types and procedures.
- Q.5 What are the factors which influence location decision?
- Q.6 What is meant by Cellular layouts? Discuss the various layout and their importance.
- Q.7 Discuss the various steps in Capacity Planning.
- Q.8 State the quality parameters in an organization. Mention the tools of quality control.

**PART – C****(Compulsory)**

- Q.1 Your institute intend to build a new building for its New Management Course from next session. You are a brilliant student of your institute and responsibility is given to you for this New Project called project “ANTELIA”. You are required to do the following – [20]
- (a) Build your team & mention their capabilities.
  - (b) Mention the product life cycle plan with diagram.
  - (c) Explain layout techniques with flow chart.
  - (d) Suggest an ERP model for this institute.
-

**1M204**

Roll No. \_\_\_\_\_

Total No. of Pages: **3****1M204****MBA I - Sem. (Main & Back) Exam., 2022****M-104 Marketing Management****Time: 3 Hours****Maximum Marks: 70***Instructions to Candidates:*

- (i) *The question paper is divided in three parts.*
- (ii) *Part A contains 10 questions which are compulsory. Part B contains eight questions out of which five are to be attempted. Part C contains one question which is compulsory.*

1. NIL2. NIL**PART – A****(Word limit 25 only)****[10×2=20]****(All questions are compulsory)**

Q.1 Define Market.

Q.2 List out the necessary skills for a Marketing Manager.

Q.3 Define the term Holistic Marketing.

Q.4 What is called new product development?

Q.5 What is the meaning of advertising?

Q.6 Mention any three demerits of online buying.

Q.7 What is the concept of brand?

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- Q.8 Defining positioning in market.
- Q.9 What are the current trends in wholesaling?
- Q.10 What is the meaning of digital marketing?

### **PART – B**

**(Attempt any five questions)**

**[5×6=30]**

- Q.1 Explain the marketing environment factors for the cosmetic industry.
- Q.2 Explain the stages of Product Life Cycle and strategies to adapt at every stage.
- Q.3 For each of the following products, should the seller adapt a market skimming or a market penetration pricing strategy? Support your decision in each instance -
- (a) High technology kitchen chimney
  - (b) A high fibre enriched box of cookies
- Q.4 Define price. Also, discuss its objectives, policies, methods of selling and different pricing strategies in detail with suitable example.
- Q.5 "Advertisement and sales promotion are inevitable in marketing." Evaluate with example.
- Q.6 "Developing customer relationship and retention is the required task for the marketers."
- How bank can adapt strategies for the said statement?
- Q.7 Write short notes (Any two) –
- (a) Role of marketing communication mix
  - (b) Digital Marketing
  - (c) Public relations
- Q.8 Describe in detail with the help of suitable example the role of consumer buying behavior in marketing.

**PART - C****(Compulsory)**

Q.1 Assume that you are a consultant in marketing. A deodorant product segmented for teenagers is to be launched through online marketing. [20]

- (a) Suggest online website marketing strategy.
  - (b) How the decision of celebrity and costing can be decided?
-

**1M205**

Roll No. \_\_\_\_\_

Total No. of Pages: **3****1M205****MBA I - Sem. (Main & Back) Exam., 2022****M-105 Information Technology for Managers****Time: 3 Hours****Maximum Marks: 70***Instructions to Candidates:*

- (i) *The question paper is divided in three parts.*
- (ii) *Part A contains 10 questions which are compulsory. Part B contains eight questions out of which five are to be attempted. Part C contains one question which is compulsory.*

1. NIL2. NIL**PART – A****(Word limit 25 only)****[10×2=20]****(All questions are compulsory)**

- Q.1 What is extranet and intranet?
- Q.2 What is meant by Fuzzy logics?
- Q.3 What is the need of system analysis?
- Q.4 Write about SQL commands CREATE and DELETE.
- Q.5 Write in short about Brokerage model.
- Q.6 Write any two elements of ERP.
- Q.7 What is Piracy of Intellectual Property?

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Q.8 Write any two principles of security system in business.

Q.9 Write in brief concept of relational data model.

Q.10 What is the use of AI for Managers?

### **PART – B**

**(Attempt any five questions)**

**[5×6=30]**

Q.1 What is Web Page Designing? Explain the different HTML tags. [6]

Q.2 What is decision support system? What are the main characteristics and components of decision support system? [6]

Q.3 Differentiate between –

(a) Operational feasibility V/s Political feasibility [3]

(b) Legal feasibility V/s Political feasibility [3]

Q.4 What is meant by data mining? Describe the KDD process with suitable diagram. [6]

Q.5 What is the need of Electronic Payment System? Explain the process of Electronic Payment System. Write the different types of e – payment system. [6]

Q.6 Write short notes on –

(a) Marketing Information System [3]

(b) Accounting Information System [3]

Q.7 (a) What is Cyber Theft? What are the different privacy issues? [3]

(b) What are security tools? Discuss security tools in brief. [3]

Q.8 What is the difference between DBMS and file system? [6]

**PART – C**  
**(Compulsory)**

Q.1 XYZ Sales Corporation is a leading provider of hot tea and coffee vending machines and tea and coffee makers. The company has been effectively managing its interactions with current and future customers, and has also been using technology to organize, automate and synchronize sales, marketing, customer service and technical support. The CRM function is thus being satisfactorily managed at XYZ. The company however now plans to engage in increased customer interaction to facilitate collaborative experiences, and to maintain an ongoing dialogues with the customers. [20]

**Questions:**

- (a) How could XYZ extend its existing CRM functions to meet the new objectives?
  - (b) How could e-CRM and social CRM be integrated to enhance current CRM functions in the organisations?
-

1M206

Roll No. \_\_\_\_\_

Total No. of Pages: 4**1M206****MBA I - Sem. (Main & Back) Exam., 2022****M-106 Organizational Behavior****Time: 3 Hours****Maximum Marks: 70***Instructions to Candidates:*

- (i) *The question paper is divided in three parts.*
- (ii) *Part A contains 10 questions which are compulsory. Part B contains eight questions out of which five are to be attempted. Part C contains one question which is compulsory.*

1. NIL2. NIL**PART – A****(Word limit 25 only)****[10×2=20]****(All questions are compulsory)**

- Q.1 "OB is the human side of management not the whole management." Enumerate.
- Q.2 What do you understand by attitude? Define components of Attitude.
- Q.3 Define perception. Also enumerate various factors affecting perception.
- Q.4 "Personality essentially deal with the variations in thought and behavior that differentiate one person from another." Elucidate this statement with example.
- Q.5 Define Motivation. List out the characteristics of motivation.
- Q.6 "Learning theories can be used to explain behavior and to control behavior." Elucidate this statement.
- Q.7 What is Transactional Analysis?
- Q.8 What is Organization change?

[1M206]

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**[1440]**

Q.9 "Both too low and too high levels of conflicts have disastrous effects on organizational performance." Elucidate this statement.

Q.10 "Stress is a silent killer. But it can be managed." Enumerate with example.

### **PART – B**

**(Attempt any five questions)**

**[5×6=30]**

Q.1 "Many new trends and critical issues are confronting managers for which OB offers solutions and many meaningful insights." Explain and discuss the major trends emerging in the field of OB.

Q.2 "Perceptual errors can cause employment discrimination, stress, career limitations and wrong decisions." Explain the statement with help of various perceptual errors.

Q.3 Write short note on –

(a) Attitude measurement

(b) Attitude Formation

Q.4 "Personality is product of both nature and nurture." While explaining this statement, discuss the various factors which influence the shaping of the personality.

Q.5 "Since needs are learned, behavior which is rewarded tends to recur at a higher frequency. Managers who are rewarded for achievement behavior learn to take moderate risks and to achieve goals." Explain and discuss the related theory of motivation.

Q.6 "A group can bring much more information, experience, understanding and a higher level of commitment to the decision." Explain. Also discuss the demerits of group decision making.

Q.7 Is the legitimate power really legitimate? What is your understanding of the legitimate power? Discuss the various types of power with relevant examples.

Q.8 "Stress can have damaging psychological and physiological effects on employee's health and on their contributions to organizational effectiveness." Explain and discuss the sound reasons for studying stress by a manager.

## **PART - C**

### **(Compulsory)**

#### **Q.1 Case study -**

#### **THANKS FOR NOTHING**

Although it may seem fairly obvious that receiving praise and recognition from one's company is a motivating experience, sadly, many companies are failing miserably when it comes to saying thanks to their employees. According to Curt Coffman, global practice leader at Gallup, 71% of U.S. workers are "disengaged," essentially meaning that they couldn't care less about their organization. Coffman states, "We're operating at one-quarter of the capacity in terms of managing human capital. It's alarming." Employee recognition programs, which became more popular as the U.S. economy shifted from industrial to knowledge based, can be an effective way to motivate employees and make them feel valued. In many cases, however, recognition programs are doing "more harm than good," according to Coffman.

Take Ko, a 50-year-old former employee of a dot-com in California. Her company proudly instituted a rewards program designed to motivate employees. What were the rewards for a job well done? Employees would receive a badge that read "U Done Good" and, each year, would receive a T-shirt as a means of annual recognition. Once an employee received 10 "U Done Good" badges, he or she could trade them in for something bigger and better – a paperweight. Ko states that she would have preferred a raise. "It was patronizing. There wasn't any deep thought involved in any of this." To make matters worse, she says, the badges were handed out arbitrarily and were not tied to performance. And what about those T-shirts? Ko states that the company instilled a strict dress code, so employees couldn't even wear the shirts if they wanted to. Needless to say, the employee recognition program seemed like an empty gesture rather than a motivator.

Even programs that provide employees with more expensive rewards can backfire, especially if the rewards are given insincerely. Eric Lange, an employee of a trucking company, recalls a time when one of the company's vice presidents achieved a major financial goal for the company. The vice president, who worked in an office next to Lange,

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received a Cadillac Seville as his company car and a new Rolex wristwatch that cost the company \$10,000. Both were lavish gifts, but the way they were distributed left a sour taste in the vice president's mouth. He entered his office to find the Rolex in a cheap cardboard box sitting on his desk, along with a brief letter explaining that he would be receiving a 1099 tax form in order to pay taxes on the watch. Lange states of the vice president, "He came into my office, which was right next door, and said, 'Can you believe this?' " A mere 2 months later, the vice president pawned the watch. Lange explains, "It had absolutely no meaning for him."

Such experience resonate with employees who may find more value in a sincere pat on the back than in gifts from management that either are meaningless or aren't conveyed with respect or sincerity. However, sincere pats on the back may be hard come by. Gallup's poll found that 61 percentage of employees stated that they haven't received a sincere "thank you" from management in the past year. Finding such as these are troubling, as verbal rewards are not only inexpensive for companies to hand out but also quick and easy to distribute. Of course, verbal reward do need to be paired sometimes with tangible benefits that employees value – after all, money talks. In addition, when praising employees for a job well done, managers need to ensure that the praise is given in conjunction with the specific accomplishment. In this way, employees may not only feel valued by their organization but will also know what actions to take to be rewarded in the future.

**Questions –**

**[20]**

- (1) If praising employees for doing a good job seems to be a fairly and obvious motivational tool, why do you think companies and manager don't often do it?
  - (2) As a manager, what steps would you take to motivate your employees after observing them perform well?
  - (3) Are there any downsides to giving employees too much verbal praise? What might these downsides be and how could you alleviate them as a manager?
  - (4) As a manager, how would you ensure that recognition given to employees is distributed fairly and justly?
-

1M207

Roll No. \_\_\_\_\_

Total No. of Pages: 4**1M207**

**MBA I-Sem. (Main & Back) Exam., 2022**  
**M-107 Cost and Management Accounting**

**Time: 3 Hours****Maximum Marks: 70***Instructions to Candidates:*

- (i) *The question paper is divided in three parts.*
- (ii) *Part A contains 10 questions which are compulsory. Part B contains eight questions out of which five are to be attempted. Part C contains one question which is compulsory.*

1. NIL \_\_\_\_\_2. NIL \_\_\_\_\_**PART – A****(Word limit 25 only)****[10×2=20]****(All questions are compulsory)**

- Q.1 Explain the types of Accounting.
- Q.2 Who are the users of Accounting?
- Q.3 Name four conventions of Accounting.
- Q.4 What is Accounting Equation?
- Q.5 Differentiate between a Journal and a Ledger.
- Q.6 What is trading account?
- Q.7 Define Cost Accounting.
- Q.8 What is Responsibility Accounting?
- Q.9 Define Standard Costing.
- Q.10 Explain Human Resource Accounting.

**[1M207]****Page 1 of 4****[1440]**

## **PART – B**

**(Attempt any five questions)**

**[5×6=30]**

Q.1 Explain the concepts of Accounting.

Q.2 Journalize the following transactions in the books of Zenith Ltd.

- 3<sup>rd</sup> May : Cash deposited into bank 60,000
- 4<sup>th</sup> May : Loan given to Amit 20,000
- 4<sup>th</sup> May : Paid cash to Sandeep 20,000
- 5<sup>th</sup> May : Paid to Sandeep by cheque 15,000
- 5<sup>th</sup> May : Cash received from Tarun 12,000
- 5<sup>th</sup> May : Took loan from Anush 15,000
- 6<sup>th</sup> May : Cheque received from Pranav 15,000
- 6<sup>th</sup> May : Paid to Intel Computers by cheque 17,000
- 6<sup>th</sup> May : Withdrew from bank 5,000
- 7<sup>th</sup> May : Withdrew from bank for office use 8,000
- 7<sup>th</sup> May : Cash received from Amit on loan account 10,000
- 8<sup>th</sup> May : Withdrew from bank for personal use 1,000
- 8<sup>th</sup> May : Cash taken by proprietor for personal use 3,000
- 9<sup>th</sup> May : Bought furniture and paid by cheque 15,000
- 9<sup>th</sup> May : Paid to Anush by cheque on loan account 5,000
- 9<sup>th</sup> May : Brought additional capital of 25,000

Q.3 From the following ledger balance extracted at the close of an accounting year ended 31<sup>st</sup> March, 2021. Prepare Trading Account as to the date:

	₹		₹
Opening Stock	40,000	Purchases	1,00,000
Sales	4,00,000	Returns Inwards	7,500
Returns Outwards	2,000	Carriage Inwards	6,000
Wages	16,500	Freight and Dock Charges	12,000
Stock on 31 <sup>st</sup> March, 2021	35,000		

Q.4 The following is the Balance Sheet of ABC Ltd. for the year ending 31<sup>st</sup> March, 2021.

Balance Sheet			
Liabilities	₹	Assets	₹
Equity Share Capital	5,00,000	Fixed Assets	10,00,000
Preference Share Capital	1,00,000	Investments	3,00,000
Reserves and Surplus	4,00,000	Current Assets :	
		Cash	50,000
		Debtors	1,50,000
		Marketable Securities	2,00,000
		Stock	3,00,000
Debentures	7,00,000		
Current Liabilities :			
Sundry Creditors	60,000		
Bills Payable	1,00,000		
Outstanding Expenses	10,000		
Bank Overdraft	1,30,000		
	20,00,000		20,00,000

From the above balance sheet, calculate -

- Current ratio
- Quick ratio
- Absolute liquid ratio
- Comment on these ratios

Q.5 From the following data given below, calculate -

- Material Price Variance
- Material Mix Variance
- Total Material Cost Variance

Materials	Standards		Actual	
	Quantity	Price per unit	Quantity	Price per unit
A	40 units	50	50 units	45
B	60 units	40	50 units	45
	100 units		100 units	

- Q.6 Explain the different types of Budgets on functional basis.
- Q.7 Explain proposed changes in Indian Accounting Standards.
- Q.8 The following are the details regarding purchases of certain items during January -

January 1	Purchases	200 units	@ ₹ 7	₹ 1,400
January 8	Purchases	900 units	@ ₹ 8	₹ 7,200
January 25	Purchases	300 units	@ ₹ 9	₹ 2,700
January 30	Purchases	400 units	@ ₹ 10	₹ 4,000
				₹ 15,300

A physical inventory of the items taken on January 31 shows that there are 700 units in hand. You are required to calculate the value of the inventory according to the FIFO method.

### **PART - C**

#### **(Compulsory)**

- Q.1 From the following Balance Sheet of New Moon Ltd.

Prepare -

[20]

- (i) Statement showing changes in working capital  
(ii) A funds flow statement for 2020-21.

**Balance sheet of New Moon Ltd.**

Liabilities	31.3.2021 ₹	31.3.2020 ₹	Assets	31.3.2021 ₹	31.3.2020 ₹
Share Capital	1,50,000	1,25,000	Goodwill	5,000	10,000
P&L Account	75,000	60,000	Land	27,000	15,000
Loans Payable (during 2020)	20,000	--	Long Term Investments	10,000	15,000
Bills Payable	35,000	20,000	Closing Stock	1,20,000	87,000
Trade Creditors	45,000	50,000	Debtors	90,000	98,000
			Cash	70,000	25,000
			Preliminary Expenses	3,000	5,000
	3,25,000	2,55,000		3,25,000	2,55,000

1M208

Roll No. \_\_\_\_\_

Total No. of Pages: **4****1M208****MBA I - Sem. (Main & Back) Exam., 2022****M-108 Business Statistics and  
Analytics for Decision Making****Time: 3 Hours****Maximum Marks: 70***Instructions to Candidates:*

- (i) *The question paper is divided in three parts.*
- (ii) *Part A contains 10 questions which are compulsory. Part B contains eight questions out of which five are to be attempted. Part C contains one question which is compulsory.*

1. NIL \_\_\_\_\_2. NIL \_\_\_\_\_**PART – A****(Word limit 25 only)****[10×2=20]****(All questions are compulsory)**

Q.1 Give definition of matrix and illustrate with an example.

Q.2 State the condition of collinearity of three points.

Q.3 Find the solution of –

$$\begin{vmatrix} a & h & g \\ h & b & f \\ g & f & c \end{vmatrix}$$

Q.4 If  $A = \begin{bmatrix} 1 & 2 \\ 0 & 3 \end{bmatrix}$  and  $B = \begin{bmatrix} 1 & 0 \\ 2 & 3 \end{bmatrix}$ Find  $A^2 + 2B$ .

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**[1440]**

Q.5 If the value of mean = 5 and mode = 5. Find out the value of median.

Q.6 What is EDA? Explain it.

Q.7 If  $N = 10$ ,  $\Sigma D^2 = 36$ , find out Coefficient of correlation by the method of rank differences.

Q.8 Given the following -

$$\Sigma p_0q_0 = 240 \quad \Sigma p_1q_1 = 480$$

$$\Sigma p_1q_0 = 600 \quad \Sigma p_0q_1 = 192$$

What will be the Index number according to Laspeyres formula?

Q.9 In a group of 200 Drycleaner's, 70 have washing machines, 50 have cloth driers & 30 have both.

Find the probability that a given dry cleaner has a washer or a drier.

Q.10 What is BEP? Explain with the help of an example.

### PART - B

(Attempt any five questions)

[5×6=30]

Q.1 (i) If  $A = \begin{bmatrix} 1 & -1 & 1 \\ 0 & 1 & 2 \end{bmatrix}$ ,  $B = \begin{bmatrix} 1 & -1 & 1 \\ 0 & 1 & -1 \\ 1 & 1 & 1 \end{bmatrix}$  and  $C = \begin{bmatrix} 1 & 0 \\ 0 & 1 \\ 1 & 1 \end{bmatrix}$ , then

prove that:  $-(AB)C = A(BC)$

(ii)  $\begin{bmatrix} x+8y & 4 \\ 2 & 6 \end{bmatrix} = \begin{bmatrix} 17 & 4 \\ 2 & 4x+y \end{bmatrix}$ , find value of x and y.

Q.2 Solve the system of equation by using determinants & Cramer's rule (Both).

$$x - 4y - z = 11$$

$$2x - 5y + 2z = 39$$

$$-3x + 24y + z = 1$$

Q.3 (A) An incomplete distribution is given below -

Variable	Frequency
0-10	10
10-20	20
20-30	?
30-40	40
40-50	?
50-60	25
60-70	15

- (i) You are given that the median value is 35. Find out missing frequency (Given the total frequency = 170)
- (ii) Calculate the Arithmetic mean of completed table.
- (B) Prepare the analysis table and find the mode.

Marks	Frequency
10	8
15	12
20	36
25	35
30	28
35	18
40	9

Q.4 From the following data of the wholesale prices of wheat for ten years construct index numbers taking -

- (i) 1998 as Base
- (ii) By Chain Base method

Year	Price of Wheat (₹ Per 40kg)
1998	50
1999	60
2000	62
2001	65
2002	70
2003	78
2004	82
2005	84
2006	88
2007	90

- Q.5 (a) From 7 Indians and 4 Japanese, a committee of 5 is to be formed. In how many ways can this be done when the committee consist of?
- All Indians
  - At least 2 Japanese
  - At least 2 Indians and 2 Japanese
  - Not more than 2 Japanese
- (b) How many four – figure numbers can be formed from the digit 1, 2, 3, 4, 5, 6, 7, 8 and 9 there is –
- Restrictions on repetition of digits
  - No Restrictions on repetition of digits
- Q.6 (i) The following mistakes per page were observed in a book.

Number of mistakes per page	0	1	2	3	4
Number of times the mistakes occurred	211	90	19	5	0

- Fit a Poission distribution to the data. (Given  $e^{-0.44} = 0.6.443$ )
- (ii) It is known past experience that in a certain plant there are on the average 4 industrial accidents per month. Find the probability that in a given year there will be less than 4 accidents. Assume Poission distribution. (Given  $e^{-4} = 0.0183$ ).
- Q.7 “The investment process involves a series of activities starting from the policy formulation.” Discuss.
- Q.8 Write a short note on –
- Input-output analysis
  - Box and Whisker plot
  - Time value of money

### **PART – C** **(Compulsory)**

**Q.1 Case Study :-**

**[20]**

The following data given the frequency according to group of marks obtained by 67 students in an intelligence test, measure the degree of relationship between the age of intelligence.

Test Marks	Age in Years				Total
	18	19	20	21	
200-250	4	4	2	1	11
250-300	3	5	4	2	14
300-350	2	6	8	5	21
350-400	1	4	6	10	21
Total	10	19	20	18	67