**SAGE University, Indore**

**Institute of Management Studies – MBA  
Mid Sem Test - I**

**(July - Dec 2024)**

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| **Course: MBA (Applied ) Branch- MBA**  **Subject Name & Code: Statistics & Business Mathematics ( MGTDCMGM044T)**  **Sem: I**  **Max Marks: 20 Duration: 1 Hrs.** | | | | | |
| CO- Students will have knowledge of different types of matrices and their properties, and apply matrix operations in various  business contexts.  CO- Students will able define key statistical concepts and understand their scope and limitations in the context of business  decision-making. | | | | | |
|  | Section – I Objective type Questions (From CO) | Marks | CO | BL | PO |
| Q.1 | **1.What is a Matrix?**  i) A collection of numbers arranged in rows and columns  ii) A type of graph iii) A mathematical operation iv) A statistical measure  2. **Which of the following is a type of matrix?** i) Identity Matrix ii) Square Matrix iii) Zero Matrix iv)All of the above  **3. Which operation can be performed on matrices?** i) Addition ii) Multiplication  iii) Transposition iv) All of the above  4**. A matrix with more rows than columns is called a square matrix.**  i) True ii) False  **5 Which of the following is NOT a type of correlation?** i) Positive correlation ii) Negative correlation  iii) Zero correlation iv) Tangential correlation | 5 | 3,4,5 | K1,2 | 1,2,5 |
|  | Note: Attempt any 2 questions from the following.  Q.2 to Q. 4. Each question carries 2.5 marks. |  |  |  |  |
| Q.2 | Using the adjoint method, find the inverse of the matrix: | 2.5 | 4 | K1 | 2 |
| Q3 | **Discuss the types of matrices.** | 2.5 | 4 | K2 | 2 |
| Q4 | **Grouped Data Mean Calculation:** For the following frequency distribution, calculate the mean by short cut method.   | **Class Interval** | **Frequency** | | --- | --- | | 10 - 14 | 3 | | 15 - 19 | 5 | | 20 - 24 | 7 | | 25 - 29 | 2 | | 2.5 | 5 | K2 | 5 |
|  | Section – II ( From CO) |  |  |  |  |
| Q5 | Calculate the product of the following matrices: | 2.5 | 3 | K2 | 9 |
| Q6 | X + y=11, 2x-6=-2 Solve the equation using Cramer’s rule | 2.5 | 3 | K1,2 | 9 |
|  | **Note: Attempt any 01 questions from the following.**  **Q.7 to Q. 9, Each question carries 5 marks.** |  |  |  |  |
| Q7 | Explain the process of finding the inverse of a matrix using the adjoint method.  Provide an example | 5 | 4 | K3 | 5 |
| Q8 | Using the adjoint method, find the inverse of the matrix:  a11=b4 ,a12= 7, a21=2, a22=6 | 5 | 5 | K2 | 5 |
| Q9 | Define statistics .Discuss its scope and limitations | 5 | 3 | K4,K5 | 5 |