



Madras School of Economics

(Recognized as *Institution of Special Importance* by the Government of TN)
(Included by UGC in the list of Institutions established under State Legislature Act)

Admission to M.Sc. (Data Science) Programs : Academic Year 2025-26

MADRAS SCHOOL OF ECONOMICS MSc (DATA SCIENCE) – ENTRANCE TEST 2025

INFORMATION HANDOUT

This handout contains details pertaining to various aspects of the exam you are going to undertake and important instructions about related matters. You are advised to study the handout carefully as it will help you in preparing for the examination.

The candidates must make sure that they fulfil all eligibility criteria – MSE reserves the right to reject the application if a candidate does not satisfy eligibility criteria.

The examination will comprise the following objective type multiple choice tests as stated below :

Structure of the test for MS (Data Science)

Part	Name of Test	Number of Questions	Marks	Version	Duration
Part-A	Basic Mathematics & Statistics	30	30	English	120 Minutes
	Data Interpretation and Logical Reasoning	15	15		
	Language & Reading Comprehension	15	15		
	Total	60	60		
Part-B	Advanced Mathematics	20	20		
	Advanced Statistics	20	20		
	Total	40	40		

The time for the test is 120 minutes; however you may have to be at the venue for approximately 180 minutes including the time required for logging in, collection of the Admit cards, going through the instructions etc. All questions will be made available in English only. All the questions will have multiple choices. Out of the four answers to a question only one will be the correct answer. **You have to select the most appropriate answer and 'mouse click' that alternative which you feel is appropriate/ correct. The alternative/ option that you have clicked on will be treated as your answer to that question. There will be no penalty for wrong answers marked by you. However, you are advised not to mark answers by random guessing.**

Cut-off will be applied on total score.

Some sample questions are given below. Kindly note that these questions are for illustrative purposes only and not exhaustive. In the actual examination, you will find questions of a higher level on some or all of the types and also questions on the types not mentioned here.

SAMPLE QUESTIONS

PART A

BASIC MATHEMATICS AND STATISTICS

- Q.1.** The number of ways, a three digit number which has to lie between 500 and 1000 can be made using the digits 1,2,3,5,6,9 and 0 without repetition of the numbers is _____
(1) 40 (2) 90 (3) 60 (4) 120
- Q.2.** If X and Y are two independent random variables and if standard deviation of X is 1 and standard deviation of Y is 3, then $\text{Var}(3X - Y)$ is equal to _____
(1) 0 (2) 6 (3) 18 (4) 12

DATA INTERPRETATION & LOGICAL REASONING

- Q.1-3.** Study the following table carefully and answer the questions given below _____

**Distribution of 1000 candidates as regards their marks in written examination
out of 300 and interview out of 100 in a selection examination**

Written Examination Marks	INTERVIEW MARKS					
	Below 30	30-39	40-49	50-59	60-69	70 & above
260 & above	8	18	26	18	26	4
210 to 259	5	4	30	22	10	9
160 to 209	16	10	45	56	18	9
110 to 159	28	42	100	190	15	5
60 to 109	35	115	20	8	7	5
Below 60	32	32	20	4	6	2

- Q.1.** How many candidates did obtain more than 69 percent marks and above in both written examination and interview ?
(1) 22 (2) 49 (3) 13 (4) Other than those given as options
- Q.2.** If approximately 325 candidates were to be qualified in the written examination, what should be the percentage of the qualifying marks ?
(1) above 70 (2) above 36 (3) above 63 (4) Other than those given as options
- Q.3.** About 42 percent of the candidates fall in which of the following ranges of the interview marks ?
(1) 110-159 (2) 110 & below (3) 50 to 70 (4) 50 & above
- Q.4.** At 10 paise each, how many paise will 6 lemons cost ?
(1) 6 (2) 10 (3) 60 (4) Other than those given as options
- Q.5.** Which of the following can be exact multiple of 4 ?
(1) 27114 (2) 58204 (3) 32286 (4) Other than those given as options
- Q.6.** If the profit made by selling a pen for Rs. 10 is as much as its cost, what is the cost price of the pen ?
(1) Rs. 3/- (2) Rs. 5/- (3) Rs. 10/- (4) Rs. 20/-
- Q.7.** $2168 + 3154 + 2369 = ?$
(1) 7791 (2) 7691 (3) 7681 (4) Other than those given as options
- Q.8.** If 3 workers collect 48 Kg. Cotton in 4 days, how many kg. Cotton will 9 workers collect in 2 days ?
(1) 32 (2) 108 (3) 72 (4) Other than those given as options

READING COMPREHENSION

- Q.1-2.** Read the following passage carefully and answer the given question.

Badal and Rajmal lived side by side and had their shops in a busy market place. Although his goods sold quickly Rajmal made just enough to sustain himself and his family as he often allowed the needy to buy goods and pay for them later. One day Rajmal decided to go on a pilgrimage with his family. However he did not want to take the little money he had accumulated with him. "There may be thieves along the way. I shall also need some

money to get my business running again when I return. I think I should leave my savings with Badal. He is a rich man so I can trust him." Rajmal went to Badal and requested him to keep his savings safely. Badal assured him that he would guard the savings with his life till Rajmal's return.

Six months later when Rajmal returned he went to Badal with some sweets and began to talk about the trip. Badal said, "I have no time to listen to your story now, I am too busy." "All right I will come another day but give me the savings I entrusted to you." "You gave me no money", Badal shouted "if you want me to pay for the sweets you bought, I will, but you did not leave any money with me." A small crowd gathered around. They knew Rajmal to be an honest person and he was well liked. On the other hand, he had just returned from his trip and may be being embarrassed to borrow money, he was trying to get money through this means. Unable to decide whom to believe, both men were taken before the king. He listened to everyone, one by one and then closed his eyes and pondered deeply. "Who else was with you when you handed over your savings ?", he asked Rajmal. "No one Sir", Rajmal replied. "But you must produce a witness" the king insisted. "There was no one there except a few parrots", Rajmal said in despair. "Then bring a parrot to me. One of my courtiers can understand their language. We shall learn the truth." Rajmal left to bring back a parrot. The crowd began to mutter. "How can anyone understand the language of a parrot ?" But the king began to speak to Badal, "Rajmal is taking a long time to return", "Oh, he will take at least two hours each way although I am sure he has run away", was Badal's reply. The king said nothing. Five hours later Rajmal arrived in tears having been unable to capture a single parrot. The king however ordered his guards to imprison Badal, "How could you have known how long it would take him to return if you did not know the spot where Rajmal had entrusted the money to you? You will return your friend's money at once !" Rajmal bowed and praised the king for his wisdom.

Q.1. Why was Rajmal not wealthy ?

- (1) The price of his goods was too high for the poor to afford.
- (2) He spent all his money buying his family expensive gifts.
- (3) He allowed poor customers to pay him when they could afford to.
- (4) He spent most of his money on going for pilgrimages.

Q.2. Which of the following can be said about Badal ?

- (1) He was a true friend to Rajmal.
- (2) He was greedy but poor.
- (3) He had a poor memory and forgot that Rajmal had left his savings with him.
- (4) He did not like sweets.

Q.1-4. Direction : – Read the following passage carefully and answer the questions given below it. Certain words are underlined to enable you locate them while answering some of the questions .

Power and possession have been central pursuits of modern civilization for a long time. They blocked out or distorted other features of the Western Renaissance (revival) which promised so much for humanity. What people have been and are still being taught to prize are money, success, control over the lives of others, acquisition of more and more objects. Modern social, political and economic systems, whether capitalists, fascist or communist, reject in their working the basic principle that the free and creative unfoldment of every man, woman and child is the true measure of the worth of any society. Such unfoldment requires understanding and imagination, integrity and compassion, co-operation among people, and harmony between the human species and the rest of nature. Acquisitiveness and the pursuit of power have made the modern man an aggressor against everything that is non-human, an exploiter and oppressor of those who are poor, meek and unorganized, a pathological type which hates and distrusts the world and suffer from both acute loneliness and false pride.

The need for a new renaissance is deeply felt by those sensitive and conscientious men and women who not only perceive the dimensions of the crisis of our age but who also realize that only through conscious and co-operative human effort may this crisis be met and probably even overcome.

Q.1. According to the passage, why has modern man turned out to be an enemy of everything that is non-human ?

- (1) He has been dominated by drives of acquisitiveness and power.
- (2) He hates and distrusts other human beings
- (3) Non-human have refused cooperation to human beings.
- (4) None of these

Q.2. Which of the following is one of the requirements to bring out the best in man ?

- (1) Money (2) Understanding (3) Power (4) Acquisitiveness

Q.3. The real attainment of any society can be adjudged by which of the following ?

- (1) The degree of freedom for pursuing more and more power.
- (2) The encouragement for acquisitive tendencies.

- (3) Strict adherence to authoritarian structure
- (4) None of these

- Q.4.** The modern value systems encourage the importance of which of the following ?
- (1) Spiritual development of all individuals.
 - (2) Recognition of freedom and equality
 - (3) Craving for power and possession
 - (4) Spirit of inquiry and knowledge

PART B – ADVANCED MATHEMATICS

- Q.1.** A linear differential equation of order n having the form $a_0(x)D^n y + a_1(x)D^{n-1}y + \dots + a_n(x)y = R(x)$ is called homogenous linear differential equation with constant coefficient's when ____
- (1) $a_0(x), a_1(x), \dots, a_n(x)$ are not all constants and $R(x) \neq 0$
 - (2) $a_0(x), a_1(x), \dots, a_n(x)$ are not all constants and $R(x) = 0$
 - (3) $a_0(x), a_1(x), \dots, a_n(x)$ are all constants and $R(x) \neq 0$
 - (4) $a_0(x), a_1(x), \dots, a_n(x)$ are all constants and $R(x) = 0$
- Q.2.** Given that a 3×3 matrix satisfies the equation $A^3 - A^2 + A - I = 0$, the value of A^4 is ____
- (1) Not computable from the given data
 - (2) $-A^3 - A^2 + A - I$
 - (3) $-A^3 - A^2 + A$
 - (4) I

ADVANCED STATISTICS

- Q.1.** In statistical hypothesis test of equality such as $H_0 : \mu = 10$ against $H_0 : \mu \neq 10$ is tested at level of significance $\alpha = 5\%$ means ____
- (1) 95% of the time we will make an incorrect inference
 - (2) 5% of the time we will say that there is a real difference when there is no difference
 - (3) 5% of the time we will say that there is no real difference when there is a difference
 - (4) 95% of the time the null hypothesis will be correct
- Q.2.** If the population SD is known to be 5 for a population containing 80 units, find the standard error of sample mean for a sample of size 25 without replacement is ____
- (1) 0.25
 - (2) 1
 - (3) 1.25
 - (4) 0.83

(A) Details of the On-line Examination Pattern

- (1) The examination will be conducted on-line i.e. on a computer.
- (2) All tests will be in English.
- (3) All the questions will have multiple choices. Out of the four answers to a question only one will be the correct answer. **The candidate has to select the most appropriate answer and 'mouse click' that alternative which he/ she feels is appropriate/ correct. The alternative/ option that is clicked on will be treated as the answer to that question. Answer to any question will be considered for final evaluation, only when candidates have submitted the answers by clicking on "Save & Next" or "Mark for Review & Next".**
- (4) The clock has been set at the server and the countdown timer at the top right corner of your screen will display the time remaining for you to complete the exam. When the clock runs out the exam ends by default - you are not required to end or submit your exam.
- (5) The Question Palette displayed on the right side of screen will show the status of each question using one of the following symbols:

-  **1** You have not visited the question yet.
-  **2** You have not answered the question.
-  **3** You have answered the question.
-  **4** You have NOT answered the question, but have marked the question for review.
-  **5** The question(s) "Answered and Marked for Review" will be considered for evaluation.

The Marked for Review status for a question simply indicates that you would like to look at that question again. *If a question is answered and Marked for Review, your answer for that question will be considered in the evaluation.*

- (6) To select a question to answer, you can do one of the following :
 - (a) Click on the question number on the question palette at the right of your screen to go to that numbered question directly. Note that using this option **does NOT save your answer** to the current question.
 - (b) Click on '**Save & Next**' to save answer to current question and to go to the next question in sequence.
 - (c) Click on '**Mark for Review and Next**' to save answer to current question, mark it for review, and to go to the next question in sequence.
- (7) To select your answer, click on one of the option buttons.
- (8) To change your answer, click another desired option button.
- (9) To save your answer, you **MUST** click on **Save & Next**.
- (10) To deselect a chosen answer, click on the chosen option again or click on the **Clear Response** button.
- (11) To mark a question for review click on **Mark for Review & Next**. *If an answer is selected for a question that is Marked for Review, the answer will be considered in the final evaluation.*
- (12) To change an answer to a question, first select the question and then click on the new answer option followed by a click on the **Save & Next** button.
- (13) Questions that are saved or marked for review after answering will ONLY be considered for evaluation.**
- (14) Sections will be displayed on the top bar of the screen. Questions in a section can be viewed by clicking on the section name. The section you will view will be highlighted.
- (15) After clicking the **Save & Next** button on the last question for a section, you will automatically be taken to the first question of the next section.
- (16) You can move the mouse cursor over the section names to view the status of the questions for that section.
- (17) You can shuffle between sections and questions anytime during the examination as per your convenience.
- (18) The candidates are requested to follow the instructions of the "Test Administrator" carefully. If any candidate does not follow the instructions / rules, it would be treated as a case of misconduct/ adoption of unfair means and such a candidate would be liable for debarment from appearing for examinations for a period as decided by MSE.
- (19) The candidates may ask the Test Administrator about their doubts or questions only before the commencement of the test. No query shall be entertained after the commencement of the examination.
- (20) After the expiry of 120 minutes, the candidates will not be able to attempt any question or check their answers.
- (21) Please note :**
 - (a) Candidates will not be allowed to "finally submit" unless they have exhausted the actual test time.**
 - (b) Under no circumstances should a candidate click on any of the 'keyboard keys' once the exam starts as this will lock the exam.**

B] General Instructions:

- (1) Please note Date, Reporting time and Venue address of the examination given in the Admit card.
- (2) You may visit the venue one day before the Online Examination to confirm the location so that you are able to report **on time** (as printed in the Admit card) on the day of the examination. Late comers will not be allowed.

- (3) The Admit-card must be brought with you to the examination venue along with your recent passport size photograph duly pasted on it. (Preferably the same photograph as was as uploaded).
- (4) You must scrupulously follow the instructions of the Test Administrator and MSE Representative at the examination venue. If you violate the instructions you will be disqualified and will be asked to leave the examination venue.
- (5) No use of calculators (separate or with watch), books, note books or written notes, cell phones (with or without camera facility), or any other electronic device will be allowed during the examination.
- (6) Please bring the Admit card with your recent photograph affixed thereon, photocopy of the ID proof stapled with Admit card and same currently valid photo identity proof in original. - **THIS IS ESSENTIAL. Please hand over the admit card alongwith photocopy of photo identity proof duly stapled together to the invigilator.** Currently valid photo identity proof may be PAN Card/Passport/Permanent Driving Licence/Voter's Card/Bank Passbook with photograph/Photo Identity proof issued by a Gazetted Officer on official letterhead /Photo Identity proof issued by a People's Representative on official letterhead/Valid recent Identity Card issued by a recognised College/University/ Aadhar/E-Aadhar Card with a photograph/Employee ID/Bar Council Identity card with photograph. **Please Note - Ration Card and Learner's Driving Licence will NOT be accepted as valid ID proof.** Please note that your name as appearing on the Admit card (provided by you during the process of registration) should exactly match the name as appearing on the photo identity proof. Female candidates who have changed first/last/ middle name post marriage must take special note of this. If there is any mismatch between the name indicated in the Admit card and Photo Identity Proof you will not be allowed to appear for the exam. In case of candidates who have changed their name will be allowed only if they produce Gazette notifications/their marriage certification/affidavit.
- (7) Your responses (answers) will be analysed with other candidates to detect patterns of similarity of right and wrong answers. If in the analytical procedure adopted in this regard, it is inferred/concluded that the responses have been shared and scores obtained are not genuine/valid, your candidature may be cancelled. Any candidate who is found copying or receiving or giving assistance or engaging in any behaviour unbecoming of a candidate will not be considered for assessment. MSE may take further action against such candidates as deemed fit by it.
- (8) You should bring with you a ball-point pen. Rough sheet will be provided which can be used for rough work or taking down the question number you would like to review at the end of the test before submitting your answers. After the test is over, you **MUST** hand over this sheet of paper along with the Admit card and photocopy of photo identity proof to the Test Administrator before leaving the venue.
- (9) The possibility of occurrences of some problem in the administration of the examination cannot be ruled out completely which may impact test delivery and/or result from being generated. In that event, every effort will be made to rectify such problem, which may include the conduct of another examination if considered necessary. Decision of the test conducting body in this regard shall be final. Candidates not willing to accept such change shall lose his/her candidature for this exam.
- (10) If the examination is held in more than one session, the scores across various sessions will be equated to adjust for slight differences in difficulty level of different test batteries used across sessions. More than one session are required if the nodes capacity is less or some technical disruption takes place at any centre or for any candidate.
- (11) Please note that a candidate is allowed to appear only once in the online examination. Multiple appearance in online examination will result in cancellation of candidature. In case more than one Admit card has been generated, candidates are advised to appear only once on the date and at the time mentioned on the respective Admit card. All other Admit cards are to be surrendered.
- (12) Anyone found to be disclosing, publishing, reproducing, transmitting, storing or facilitating transmission and storage of test contents in any form or any information therein in whole or part thereof or by any means verbal or written, electronic or mechanical or taking away the papers supplied in the examination hall or found to be in unauthorised possession of test content is likely to be prosecuted.
- (13) Instances for providing incorrect information and/or process violation by a candidate detected at any stage of the selection, process will lead to disqualification of the candidate from the selection process and he/she will not be allowed to appear in any recruitment process of the MSE in the future. If such instances go undetected during the current selection process but are detected subsequently, such disqualification will take place with retrospective effect.
- (14) Candidates are advised to take note of "The Public Examinations (Prevention of Unfair Means) Act, 2024".

WISH YOU GOOD LUCK !