



Institute of Actuaries of India

Statutory body established under an Act of Parliament

Unit No. F-206, 2nd Floor, F Wing, Tower II, Seawoods Grand Central,
Plot no R-1, Sector 40, Nerul Road, Navi Mumbai - 400706
+91 22 6243 3333 +91 22 6243 3322

9th April, 2019

CM1 and CM2 Guide

Introduction to Actuarial Statistics (CM1 and CM2)

This guide should help answer your questions about CM1 and CM2, including:

- the format of the online examinations;
- guidance on how to take the examinations;
- administrative information; and
- technical information.

If you have any further questions that are not covered in this guide, please contact the Examination department: jyoti@actuariesindia.org

What is covered in CM1 and CM2?

Subjects CM1 and CM2 are a fundamental part of the Core Principles subjects.

CM1 provides a grounding in the principles of actuarial modelling, focusing on deterministic models and their application to financial products. It will equip you with the knowledge of:

- the basic principles of actuarial modelling,
- theories of interest rates and
- the mathematical techniques used to model and value cashflows which are either certain or are contingent on mortality, morbidity and/or survival *and other factors.*

CM2 provides a grounding in the principles of actuarial modelling, focusing on stochastic and asset-liability models and the valuation of financial derivatives.

It will equip you with the knowledge of:

- the theories of behaviour of financial markets,
- measures of risk,
- determining reserves for a non-life insurer and
- pricing options, *etc.*

Subjects CM1 and CM2 include both theory and application of the ideas using Microsoft Excel.

What is the format of the CM examinations?

Details of the syllabus for CM1 and CM2 has been uploaded on IAI website. Questions for the CM1 examination and the CM2 examination will be drawn from across the syllabus.

Each of the CM1 and CM2 examination consists of two elements, Paper 'A' and Paper 'B':

Handwritten signature and initials



Institute of Actuaries of India

Statutory body established under an Act of Parliament

Unit No. F-206, 2nd Floor, F Wing, Tower II, Seawoods Grand Central,
Plot no R-1, Sector 40, Nerul Road, Navi Mumbai - 400706
+91 22 6243 3333 +91 22 6243 3322

- **Paper A:** 3 hrs and 15 mins written examination paper.
- **Paper B:** 1 hour and 45 mins computer based examination. This is a problem based assessment, using Microsoft Excel with questions requiring candidates to use data to answer questions. For the problem based assessments all candidates will need to be confident in the use of Microsoft Excel.

Both these papers will be conducted at designated examination centres only.

For the examinations, you will need to have access to the following:

- **Version of Microsoft Excel:** Microsoft Office 2007 or any other higher version

Detailed knowledge of Excel is not part of the examination and hence extensive knowledge of Excel functions is not necessary. However, candidates will be expected to model calculations effectively using this software. Therefore, a CM1/CM2 candidate should have experience of using Excel. Candidates who have limited experience or rarely have an opportunity to create spreadsheets are encouraged to practise before attending the examination. Examination assignments are constructed so as not to require advance Excel techniques. However, candidates should be able to use the Excel functions listed below. Candidates are unlikely to be required, in any one examination, to use all of the functions listed here:

AVERAGE	SUM	COUNTIF	AND / OR
STDEV	PRODUCT	VLOOKUP / HLOOKUP	NOT
MIN / MAX	SUMPRODUCT	INDEX	ROUND
MEDIAN	SUMIF	OFFSET	ABS
LARGE / SMALL	COUNT	IF	INT
		GOALSEEK	

As well as the above built-in functions, candidates should know how to sort data and how to create and modify charts.

Good practice

In Excel, or any other modelling package, there are good practice steps that should be followed. For the computer-based assessment, these help to:

- reduce the risk of errors within your model
- assist the examiners in reviewing your model, and
- facilitate appropriate marking and grading of your work.

The following principles should be followed in building any computer model and should be demonstrated in your exam assignment:



Institute of Actuaries of India

Statutory body established under an Act of Parliament

Unit No. F-206, 2nd Floor, F Wing, Tower II, Seawoods Grand Central,
Plot no R-1, Sector 40, Nerul Road, Navi Mumbai - 400706
+91 22 6243 3333 +91 22 6243 3322

- Structure a worksheet so that it can be read from left to right and from top to bottom.
- Label each column/row where appropriate as clearly as possible so that your work on each sheet is clear and is clearly referenced.
- Ensure your final answers are clearly signposted for the examiners.
- Keep all formulae as simple as possible – the calculations do not need to be performed in one formula and intermediate calculations can facilitate checking.
- In spreadsheets, avoid changes in cell formulae along rows/down columns. If this is not practical, make sure the changes are clearly flagged to other users who may have to make amendments.

What examinations should I have passed before sitting CM1 and CM2?

There are no pre-requisite requirements for CM1 or CM2. However the syllabus for CM1 lists a number of foundation topics such as summarising data sets, basic probability theory and random variables. These topics are assumed knowledge for CM1 and you may wish to ensure you are familiar with them before studying for CM1. Furthermore because CM2 builds on many of the principles covered in CM1, you may wish to ensure you are familiar with the topics covered in CM1 before studying CM2.

Candidates are informed that required Formulae and Tables books will be made available in examination centres for both the papers.

Professional conduct during the CM Examinations

It is important to note that professional conduct is required at all times and the following will apply:

- Inappropriate behaviour during the CM examinations may lead to expulsion from the examination, with disciplinary consequences.
- You are not permitted to use electronic material that has been pre-prepared or copied in your examination submission (for example, pre-prepared Word or Excel documents).

For the online examinations your attention is drawn to:

- Online examinations will be conducted in classroom environment under the supervision of an invigilator.
- Internet access shall be restricted during the examination period.
- All required data will normally be supplied electronically at the start of the examination time.
- Candidates must not use an imported e-template unless provided as part of the examination material.

GAU
GA



Institute of Actuaries of India

Statutory body established under an Act of Parliament

Unit No. F-206, 2nd Floor, F Wing, Tower II, Seawoods Grand Central,
Plot no R-1, Sector 40, Nerul Road, Navi Mumbai - 400706
+91 22 6243 3333 +91 22 6243 3322

- In case of technical glitch, Institute will not be responsible for retrieval of data. Institute will make best possible efforts for data retrieval and students will have to re-appear in next examination.
- The examination will be time based test of 1 hour and 45 minutes duration and will automatically close after the specified time period. The work done by the candidate till that time will automatically get submitted in the provided platform.
- Examination submissions will only be accepted in the specified file format e.g. If MS Word is specified then PDF submissions will not be accepted.

Dinesh Chandra Khansili
Executive Director