

Preface

Having recently sat and passed the CM (Part 3) examination from the Institution of Structural Engineers, I have been asked to prepare a summary of my preparation.

It is without pretension that I have agreed and tried to present in the following my guide to the future candidates.

Nevertheless, I would like to remind the reader that preparation is a personal matter that can not be standardised.

This paper contains notes that summarise my preparation to sit the examination in April 2002 and will not cover the description of the examination in itself. It could be used as a guide for those who do not know how to approach this particular type of examination.

Introduction

The CM (Part 3) examination for the Institution of Structural Engineers has the reputation of being one of the toughest in the construction industry with a high failure rate.

In fact, the candidate will have seven hours to demonstrate to the examiner that he has the ability to design and a facility to communicate his design inventions.

The exam will leave most candidates mentally exhausted at the end of the day and it is true to say that the candidate needs to carry out one week work in a day.

Therefore, proper preparation is essential prior sitting the examination.

The following is presented in the chronological order of my preparation.


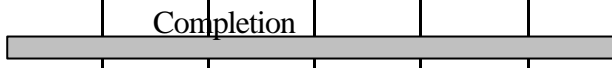















Collection of information

The first stage of my preparation was to collect information such as past exams with examiner's comments (useful CD from the Institution), personal files from Chartered colleagues, technical papers, books and publications. Note that this collection is an ongoing process that is carried out during the whole of the preparation process.

Also, it is helpful to get as soon as possible an A3 drawing board that can be borrowed from a colleague.

Programme

Once the main information is collected, it is important to prepare a programme in order to plan the preparation in the time available. For my example, I had organised myself from December to April as follows:

	December	January	February	March	April
Preparation of personal file	main 	Completion 			
Test 1					
Test 2					
Test 3					
Test 4					
Evening course					
Test 5					
Test 6					
Test 7					
Test 8					
Test 9					
Test 10					
Test 11					
Test 12					
Resting Day					
Exam Day					

The programme is the back bone of the preparation. Once prepared and reviewed, it is strongly recommended to follow the planned dates.

Preparation of personal file and documents

The exam conditions allow the candidate to bring as many documents as he wish. However, it becomes obvious that there will be no time for major reading and for wasting time to find the information. It is therefore recommended to prepare the information in a single lever arch folder. The personal file needs to be prepared in a way that the candidate will spend the minimum time to find the information he is looking for. Thus, it is recommended to keep the amount of information to the minimum required for the exam with dividers and a table of contents. Also, it is crucial that the candidate will be familiar with his personal.

The sections of my file (preparation for the Bridge question only) were as follows:

Sections	Title	Typical content
1	Typical spans and span to depth ratios	Data of span to depth ratios
2	Foundations	Pad and piles
3	Letter	Examples
4	Loads and combinations	Unit weight of materials
5	Reinforced Concrete Bridges	Design charts
6	Prestressed Concrete Bridges	Precast beams catalogue
7	FCMs and launched Bridges	Typical ratios and articles
8	Steel and composite Bridges	Concept and examples
9	Universal Steel sections	Extract of properties and capacities
10	Piers and Columns	Design method
11	Abutments and retaining walls	Earth pressure
12	Underpass	Examples
13	Construction methods and drawing notes	Examples
14	Bridge Inspection	Notes from evening meeting
15	Formulae	Analysis formulae
16	Tables for slabs and Pucher charts	Tables and charts
17	Bearings	Extract from catalogue
18	Drainage, waterproofing and joints	Extract from design guides
19	Parapet	Extract from design manuals
20	Cost estimate	Examples

On the side, I had prepared 3 small files containing articles covering the following:

- Canal bridges
- Moving bridges
- Bridge repair and strengthening

It is easy to understand while it is called « personal » file as every individual will find a different need of information to be incorporated in the file. This file is mainly prepared at the beginning of the preparation process but it is completed during the entire period of the preparation. Note also that it often becomes a useful tool in the working life of the engineer.

Practice with past papers

As shown in the programme, I decided to concentrate in the practice with past papers. This decision was taken in order to become familiar with the following:

- typical presentation of the brief
- time management
- practice to give solutions for a variety of bridge projects
- drawing practice
- presentation practice

However, among the twelve attempts, I only tried the last four tests in the exam conditions (7 hours). The conditions of my test can be summarised as follows:

- Tests 1 to 4 : no time limit
- Tests 5 to 8 : time limit per parts (1 and 2) but with proper break in between (few days)
- Tests 9 to 12: done in exam conditions (7 hours in one day).

After completion of the past paper, spend some time reading the examiner's comments and try to judge your paper to see if you have missed a critical aspect requested by the question. Also, discuss the issues with your colleagues and try to get the most of each test.

Evening course organised by the local branch

This course is made of 6 evenings (three hours per evening). It can be useful to pick-up few tricks from other candidates or recommendations from the Chartered Engineers present. A past paper is treated every evening (less than two hours!) and it does help to build-up the pressure for the exam.

Beside the preparation of the exam, it gives a good opportunity for candidates to practice working in group and to present solutions to the attendees.

Just before the exam

It is not recommended to practice the day or the night before the exam. Personally, I took the day off work in order to relax. I went for a walk and I went to the University to identify where the room for the exam was (as the extra stress to find the room on the day is not recommended). Also, few days before the exam, I tried to guess the question in writing down the past questions for the last ten years and trying to find a regular pattern.

Conclusion

As you can see, I have spent a lot of time in my exam preparation, but it was worthwhile. You just need to think that if you spend enough time preparing you will not have to prepare for the next year. In other words, you are saving time and effort in preparing properly the first time.

Also, I would like to say that this preparation gave me the opportunity to look at new structure types such as canal bridges and opening bridges.

Finally, I would like to say that this type of preparation helped me mainly in the time management which, I believe, is the principal key to succeed in this exam.

Good Luck