

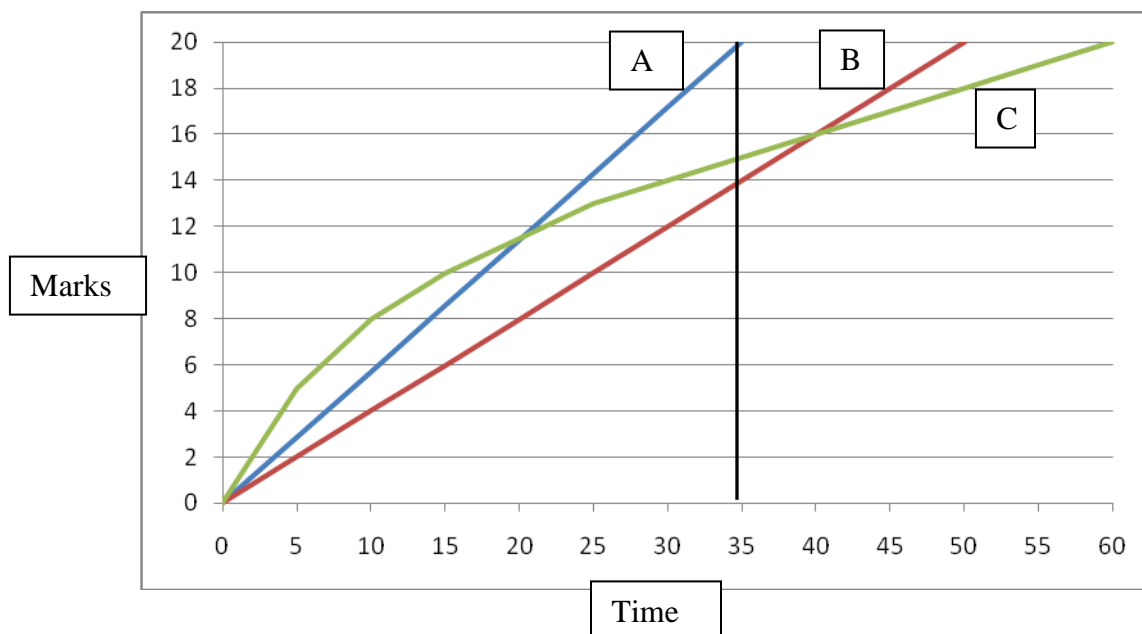
18 October 2011

Guide to writing your GCC examinations

The Government Certificate of Competence consists of academic and practical training followed by two examinations – Plant and Legal Knowledge. These exams can be quite daunting especially for first time candidates. This article is intended to assist candidates with techniques that should enhance their exam submissions.

Time management

The Plant paper consists of two sections - A and B. There are three questions in Section A, all of which must be answered. Two questions out of five must be selected from Section B. The exam lasts for three hours. The first five minutes must be used to read through the complete paper. After that you have 35 minutes per question. **You must attempt all five questions regardless.** Time control is critical. If you have not finished a question in 35 minutes, stop what you are doing and start a new question leaving space to finish the last question. Marks are often not obtained in direct relation to time as in A below.



Consider the person attempting a question modelled as B. It takes the candidate 50 minutes to complete. The additional fifteen minutes taken only resulted in 6 additional marks. Some questions have a profile (depending on the candidate), as shown in C. In other words within the first 15 minutes, half the questions marks are obtained. This emphasizes the absolute necessity of attempting or at least starting all five questions. In one examination one candidate wrote half a book on one question which would be typical of C. They would only have gained five additional marks in the 25 minutes extra taken!

The Legal Knowledge paper consists of ten questions all of which must be answered. Similarly to Plant, take five minutes to read the paper then 17 ½ minutes per question. Attempt all questions.

Spelling

Remember that the person reading and marking your paper would far rather be watching rugby or reading his favourite book. It is important that you make your paper as presentable and readable as possible. Bad spelling and messy handwriting will only make the examiner more negative which is the last thing you want. You will not be penalised if you spell sheave wheel as sheeve wheel but you will be giving the examiner a bad general overall impression of yourself. Do not even think about using sms text.

Numbering of questions

It is important that you clearly number all your questions. After completing a full question, draw a solid line across the width of the page. Every sub section of each question should be clearly marked as 2 (a), 2 (b) etc. and not just (a), (b) etc. After each sub question, draw a half page width line separating the sections. A coloured felt tip pen is ideal such as green or blue for numbering your questions and drawing separating lines. Do not use red anywhere in your book, ever. You must use a black or blue pen to write with and make sure it is a good quality pen not one that leaves blobs of ink. Bring several pens.

Multiple books

Sometimes candidates use more than one book. It is important that you write Book 1 of 2 and Book 2 of 2 on the front of the respective books in your coloured felt tip pen. It is also very important you write "Continued in Book 2" on the last page of your first book. If you use more than two books, you are waffling and padding and probably do not know your subject material. Remember what Churchill said, "If you want me to talk for an hour, give me five minutes' notice; if you want me to talk for five minutes, give me three weeks notice".

Units

Again in line with demonstrating to the examiner that you actually know what you are talking about, it is imperative that you use the correct units. Often units are left out and most often the wrong units are used or carried down from line to line. One step of the calculation shows kW and the next step shows kN – they are not the same. What is also very important is to use the correct letter cases. Use kW not KW or Kw; use kPa not KPA; use mA for milliamps not MA etc.

Assumptions

As in real life for an Engineer, not all information is available to you. Quite often some questions will leave out certain information. This would typically be things like coefficients of friction, efficiencies, % steel area in a rope etc. You need to demonstrate to the examiner that you can think on your feet. You have done a hundred pump and motor calculations and know that there are certain efficiencies involved. If they are not given, you must state “Assuming an efficiency of 75%” for example. There are also certain constants that you must know that are fixed such as the density and freezing point of water; Young’s modulus for mild steel and the gas constant R, as examples.

Often there are mistakes or omissions in the paper. Again you need to demonstrate your competence to the examiner. If it states that the grade of the steel in the winding rope is 190 MPa, you would be expected to correct this to 1900 MPa.

“Check”

The last C in GCC stands for Competence. You must talk like an Engineer. Some questions are descriptive in nature. An example was the question on describing the procedure for a typical vertical shaft examination. Most candidates wrote “I will check the guides – I will check the buntings (WRONG – buntions) – I will check the cable brackets”. This is meaningless and could have been written by an accountant. You must use Engineers language. “I will visually examine and assess the condition of the steelwork”; “I will measure the thickness of the guide sections and compare them to their original thickness”; “I will visually inspect the physical condition of the penthouse steelwork and ensure any loose material or rocks are removed to enable it to perform its intended function”. Write demonstrating confidence.

In such questions, you need to say what you will do in the event of certain findings. Look out for leading sentences in the question such as “You have just been appointed as the Shaft Engineer ...”. Your answer should indicate what you will do after you have examined and assessed the condition of the shaft. You should give brief descriptions of short, medium and long term actions you will take. The only checking you do is to check you have covered everything in your answer.

Explain – List – Describe - State

The examiner will often use different words at the start of a question. It is important that you understand what he is asking you. If it states “Describe FIVE non-destructive methods for rope attachments” it means describe them not just list them. Candidates who just listed five methods such as MPI, ultrasonic etc. probably only got one or two marks if any. The question did not ask you to LIST five methods; it asked you to DESCRIBE five methods. An easy way to remember this is as if he is at the end of the telephone asking you to describe something. In this instance, a short sentence or two on each of the five is sufficient. It is also important that you look at the marks allocated. In this question in June 2011, five marks were allocated so one or two sentences were sufficient. If the full twenty marks were for this, a paragraph or two would on each be required.

If you are asked to explain something such as “Explain why cavitations may create harmful effects in fluids in motion”, you write as if you are talking to another Engineer. The statement in the question already infers that you both know what cavitations are now explain to the examiner what harmful effects they have. In this instance he would like to hear about pump impellers and valve components etc. damaged by cavitations.

Questions starting with “State” are similar to “List” but a very short description to follow usually using words like “because”, “as a result of” or “by”. If a question is “State THREE problems that can be experienced with plunger pumps”, one answer could be “excessive scoring and wear of the plungers as a result of leaking packing material”.

Sketches

It is often very helpful to make sketches and drawings for some of the Plant questions. If you are given a pumping question involving dams, tanks and multiple diameter pipes, it will help if you draw the network and label every component.

Rough work

Any rough work or trial calculations must be done separately. Draw a vertical line two-thirds across the page and do your rough work on the right hand side of that line away from your main answer. When you have finished your question, draw a solid line through the defined rough work. It will help if you write “Rough Work” at the top of the section for the examiner.

How NOT to answer questions in your GCC exam

Below are extracts from the Factories GCC exam papers answers. Do not answer your questions like these candidates.

Define the following terms as given in the Noise-induced Hearing Loss Regulations:

A "Audio player which produce sound"

"Music caused by radio and tv"

"Might be dangerous to ears of persons".

With the exclusion of workplaces where building work is performed, what effective open floor area shall be available for every employee working indoors?:

A "100 sq m - 20 sq m - 10 sq m"

Define the term *diving operations* as given in the Diving Regulations:

A "When person jumps into water with the aid of a machine"

Diving include the art of jumping"

Name THREE steps you have to take before diving operation can commence:

A "Ensure there is fluid to dive into"

Hard manual labour must be performed in an environment where the thermal index exceeds 30.

How much water must an employee drink while working in that area?:

Various answers as follows - 600 l/hr 3 l/hr 2 l/hr 6 ml/hr

In your workshop the operator has to apply the workpiece to the wheel of a power-driven grinding machine by hand for finishing off the workpiece .

At what position must the work rest be adjusted?:

A "300 mm"

"1,1 m above the ground"

When and by which regulations were the Vessels under Pressure Regulations, 1996, replaced?:

A "Diving regulations"

To what requirements must showers comply?:

A "fitted with glazed walls and doors for privacy"

What must you do where the penetration of direct sunlight into a workplace may pose a threat to the safety of persons in that workplace?:

A "fit glazed windows"

Define rolling stock:

A "Any equipment would roll if not properly installed"

Define transit:

A "Short and quick"

And finally -

Remark after answering 1 question: "Sorry my mind lock I cannot continue"

So, taking these points into consideration – one could understand why the pass rate is so low.