



THE INSTITUTION OF FIRE ENGINEERS  
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## STUDY SKILLS: GUIDANCE FOR CANDIDATES.

### Study Skills Part 1: The SQ3R method.

The SQ3R method is a useful aid to building up and refining study skills. It helps you to organise the structure of a subject in your mind, set study goals and focus on essential information.

SQ3R stands for **S**urvey, **Q**uestion, **R**ead, **R**ecall, **R**eview.

Take a moment now to memorise the mnemonic **SQ3R**. It summarises a worthwhile and effective study strategy.

**Survey.** Establish an overall picture of what you're going to study before you study it in any detail. It's like looking at a road map before going on a journey. Part of the "journey" takes you through the IFE syllabus and the headings and subheadings are the co-ordinates that help you find the route. Survey the study materials too: scan the contents, chapter introductions and summaries to pick up a general overview of the text. If a passage or section of text does not give you information which matches the syllabus, discard it and move on.

**Question.** As SQ3R is intended to be an active study technique, you need to read critically by asking questions as you learn. Make a note of any **particular** questions that come to mind or that interest you during your survey. Train yourself to ask **general** questions too, along the lines of "What is...?", "What if...?", "How...?", "Why...?", "When...?" and "Where...?" Ask yourself questions while you study: as you answer them, you will structure the material, make sense of it and remember it more easily because the process will be one of your own making.

**Read.** When you read, take care to understand the **relevant** points. Accept the fact that where the information is complex or densely packed, reading may be a slow process. Remember to read actively: read to answer questions you have asked yourself or to answer questions your instructor or the author has asked. Be alert to phrases or passages in **bold** or *italicized* print. Authors use these techniques to emphasise particular information. Be sure to read everything, including tables, graphs and illustrations: they can often convey ideas more powerfully than written text.

**Recall.** Stop reading periodically to recall what you have read. Isolate the core facts or essential processes and try to recite main headings or important ideas and list the key information that underpins them. Try to develop an overall concept of what you have read in your own words and thoughts and try to connect things you have just read to things you already know. Use the structure of what you have been studying to slot in the knowledge you have already acquired. When you do this systematically, the chances are you will remember enough to recall material for essays and examinations.

**Review.** A review is a measure of what you have studied. Re-reading is an important part of the review process: re-read with the idea that you are assessing what you have gained from it. During a review you should expand and refine notes and other written work, perhaps discuss it with colleagues but above all, make sure you clarify points you may have missed or did not understand before. The best time to complete a review is when you have just finished studying a unit of the syllabus or a section of the manual or study guide you are following. Before an examination, do a final review: this is normally called "**revision**". If you manage your time well, the final review (or revision) can be treated as a fine-tuning of the knowledge and understanding you have already developed.

## **Study Skills Part 2: Examinations.**

### **Assessment Objectives.**

Assessment objectives lie at the very heart of examinations: they make up what the examination is intended to test – its **goals** or **aims**. An understanding of assessment objectives is crucial before you go into any examination, because exams are written to discover not only how much of your subject you know and understand, but also the associated skills you are expected to demonstrate.

Briefly, there are six assessment objectives:- **Knowledge; Comprehension; Application; Analysis; Synthesis and Evaluation.**

- **Knowledge.**  
The meaning of this objective is straightforward: it tests the information and learning students have acquired as well as their ability to comprehend meanings and interpret knowledge in written or graphic form. You should remember to be **selective** in using your knowledge according to the wording of the examination question. The sum total of your knowledge on a topic is not always **relevant** or **appropriate**.
- **Comprehension.**  
The meaning of this objective is also quite straightforward: it tests candidates' ability to understand meanings and to handle and interpret knowledge in written or graphic form.
- **Application.**  
It is one thing to know a definition or to understand a concept, it is another to recognise where and when it occurs in real life. Application is the skill of being able to take knowledge and apply it to different contexts and circumstances, and to understand why problems and issues arise. The important thing to remember is that whatever the context, the principles remain constant but they will have different implications given the particular situation or issue being considered.
- **Analysis.**  
Analysis is about breaking down a complex issue into its component (or constituent) parts to make it understandable or intelligible to someone else. Analysis involves consideration of causes, consequences and other key factors that are relevant to the issue under discussion. Analysis often requires examination candidates to make decisions about the factors that go to make up a successful strategy or operational plan.
- **Synthesis.**  
Synthesis is the opposite of analysis: instead of breaking down into component parts, it means combining separate elements together to make a new whole out of parts. Reasoning from basic principles to construct a conclusion or practical solution is another way of putting it.
- **Evaluation.**  
Evaluation involves forming judgements and expressing opinions. When candidates have to evaluate something they need to comment on the importance, significance or value of something. Making judgements implies that there are no simple right or wrong answers: what is being tested is the ability to assess a situation and reach a logical conclusion, or formulate a valid and rational course of action, and cite reasons which support these judgements.

**Analysis, Synthesis and Evaluation** are the higher order skills: they are difficult to master, needing practice and careful consideration. In IFE examinations questions that require them they will be used very rarely in the Level 3 Certificate (Intermediate) examination and increasingly in the Level 3 Diploma and Level 4 Certificate (Graduate and Member) papers.

## Trigger Words.

Trigger words (or “command” words) are the **key words** in every examination question. They reveal the **assessment objective** that is being targeted by that question. Certain command words are associated with particular assessment objectives and it pays to understand what they mean as they help you to answer examination questions. However, it is **important to read the whole question carefully** as the command word on its own is not enough and needs reinforcing or qualifying with the remainder of the question. Below is a table with a list of command words below the assessment objective associated with each one:-

<b>Knowledge</b> (Recalling)	<b>Comprehension</b> (Understanding)	<b>Application</b> (Using knowledge)	<b>Analysis</b> (Taking apart)	<b>Synthesis</b> (Putting together)	<b>Evaluation</b> (Judging outcomes)
<ul style="list-style-type: none"> <li>• Annotate</li> <li>• Define</li> <li>• Give</li> <li>• List</li> <li>• Identify</li> <li>• Outline</li> <li>• State</li> <li>• What is meant by</li> <li>• Name</li> </ul>	<ul style="list-style-type: none"> <li>• Explain</li> <li>• Distinguish</li> <li>• Discuss</li> <li>• Describe</li> <li>• Outline</li> <li>• Detail</li> </ul>	<ul style="list-style-type: none"> <li>• Apply</li> <li>• Calculate</li> <li>• Choose or Select</li> <li>• Demonstrate</li> <li>• Give an example</li> <li>• Using examples</li> <li>• Referring to the evidence</li> <li>• Explain how</li> <li>• Show how</li> <li>• Why</li> <li>• Which</li> <li>• What would be the benefits/ costs of</li> <li>• Draw on your knowledge</li> <li>• Using your knowledge of</li> <li>• Graph</li> <li>• What trends</li> <li>• Explain</li> </ul>	<ul style="list-style-type: none"> <li>• Analyse</li> <li>• Calculate</li> <li>• Compare and contrast</li> <li>• Discuss</li> <li>• Explain</li> <li>• Show how</li> <li>• What factors</li> <li>• Examine</li> <li>• Organise</li> </ul>	<ul style="list-style-type: none"> <li>• Design</li> <li>• Suggest</li> <li>• Build up</li> <li>• Combine elements of..</li> <li>• Organise</li> <li>• Construct</li> <li>• What do you conclude....</li> <li>• Develop</li> <li>• Propose</li> </ul>	<ul style="list-style-type: none"> <li>• Advise</li> <li>• Evaluate</li> <li>• Assess</li> <li>• Consider</li> <li>• Discuss</li> <li>• Explain why</li> <li>• To what extent</li> <li>• Assess the extent</li> <li>• Weigh up</li> <li>• Justify</li> <li>• How far...</li> <li>• Would you agree that...</li> <li>• Evaluate the suggestion</li> <li>• Critically assess</li> <li>• Assess the relative importance</li> <li>• Summarise</li> </ul>

**N.B.** Some command words appear under more than one assessment objective: this is where the rest of the question is important in clarifying exactly what is required to answer examination questions.

## **Glossary of the Meaning of Key Command Words.**

This is not an exhaustive list but it is intended to be helpful. Some command words can appear in examinations at different levels, others only at one level.

**Analyse:** *Separate into constituent or component parts.*  
High level: use principles to formulate a strategy or plan; consider causes and consequences.

**Annotate:** *Add descriptive or explanatory labels to a diagram.*  
Low level: identify component parts with labels; complete descriptive captions.  
High level: include fully descriptive or explanatory captions.

**Assess:** *Form an estimate or judgement.*  
High level: determine the value, benefits or disadvantages of situations or solutions.

**Balance:** *Weigh up relative merits and demerits.*  
High level: take everything into consideration.

**Calculate:** *Reckon, compute or estimate: to work out mathematically.*  
Low/High level: make a mathematical calculation. (This term will not be used to mean being shrewd, circumspect or taking calculated risks.)

**Choose/**  
**Select:** *Pick out the correct or most suitable examples from a number of alternatives.*  
Low level: alternatives stated in question.  
High level: knowledge of alternatives assumed.

**Compare/**  
**Contrast:** *Liken, differentiate and discriminate.*  
Low level: describe similarities and differences.  
High level: explain relative suitability, effectiveness or proficiency.

**Define:** *Give an exact meaning or description.*  
Low level: e.g. give meanings of technical terms.  
High level: provide meanings of concepts or theories.

**Describe:** *Recount the appearance, nature or details of a particular feature.*  
Low level: description of components and techniques.  
High level: description of operations and processes.

**Design:** *Form or invent a plan or scheme.*  
High level: suggest a solution or explanation constructed from different sources.

**Detail:** *State full particulars.*  
Low level: itemising or listing in sequence.

**Develop:** *Expand upon a theory or idea.*  
High level: assumes knowledge, judges depth of understanding.

**Discuss:** *Present viewpoints/alternatives from various aspects of a subject.*  
High level: assumes knowledge and understanding; judges viewpoints advanced and balance of argument made.

**Evaluate:** *Determine the value of something.*  
High level: judge or estimate the qualities of a current practice or the proposed solution to a problem.

**Examine:** *Make a close inspection of something.*  
High level: consider critically or scrutinise in detail a proposed solution or current practice.

- Explain:** *Make clear, elucidate or illustrate the meaning of something.*  
 Low level: explanation of components or techniques.  
 High level: explanation of complex operations or processes.
- Identify:** *Establish the identity of items or to group similar items together.*  
 Low level: used as an alternative to “list”; it may also be used in terms of categorising items into related groups or to highlight a problem or a solution.
- Illustrate:** *Use examples to develop an argument or theme.*  
 High level: skills or understanding required are similar to those for “Discuss”, though balance of argument discounted.
- Suggest:** *Propose reasons, ideas or solutions.*  
 Low level: dealing with simple equipment or techniques.  
 High level: dealing with complex equipment, operations and processes.
- State:** *Express fully and clearly through text or diagram.*  
 Levels are similar to those for “Define”.
- Summarise:** *Present briefly, provide complete survey.*  
 High level: assumes knowledge; requires demonstration of grasp of comprehensive and concise overview of complex situation or process.

### **Revision for Examinations.**

If you have followed the **SQ3R** method of study, by the time you are ready to **revise** for examinations you should have a set of **review notes** to help you do so effectively. Remember this passage?

*Before an examination, do a final review: this is normally called “revision”. If you manage your time well, the final review (or revision) can be treated as a “fine-tuning” of the knowledge and understanding you have developed.*

However, revision is more than reading through your reviews:-

- Write down key points and recite them aloud
- Test yourself, using word associations if they help
- Don't move on to the next topic until you are confident with the current one. Can you:
  - define terms?
  - list key points?
  - give real world examples?
  - draw appropriate diagrams?
  - write out relevant formulae?
- After revising a topic, try answering a question on it in outline.
- Check your outline answer against your notes: have you missed anything out?
- Attempt some timed answers under examination conditions as the final exam approaches.

### **In the examination itself....**

Please remember to read the question paper **thoroughly** before you start writing. In particular, make sure you understand clearly what the questions are asking you to do. Typically, many candidates lose marks for the following reasons:-

- They do not answer questions directly or relevantly. (E.g. they write down a **list** of facts when they were asked to **explain** or **discuss** something.)

- They do not think through their answers before writing them down. However short of time you may be in an exam, it is NOT a wasteful luxury to think carefully before you commit pen to paper. A concise, thoughtful and considered answer is always better than one that is rambling and incoherent.

It may help you to think of this as dealing with two simple questions; “**What?**” and “**So what?**”.

- By “**What?**” we mean the **accurate relevant knowledge** you will need to include in your answer.
- By “**So what?**” we mean the **application or extension of this knowledge** in the way that the phrasing of the question demands.

Mull the question over in your mind first - what assessment objective is it targeting? What will you have to say to get the marks? What is important to put into your answer and what is important to miss out? In many cases a **short, brief plan** is an essential aid to ensuring your answer is well thought out and well structured, rather than just a collection of thoughts written down in no particular order.

Remember to manage your time properly. Divide the time available for the examination evenly among the questions so that each one is answered properly.

Remember that the use of good English language skills is crucial to the success of your answer: spelling, punctuation and grammar are important.

Last but not least, please ensure that the examiner can read your handwriting.

Good luck!