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Certificate in Railway Control Engineering Fundamentals (Module A) Study Guide 2022 v3

Objective

The aim of this module is to assess the candidates' knowledge and understanding of the broad concepts, principles and applications of railway signalling, telecommunications and systems engineering. It does not seek to assess in-depth knowledge of any of the subjects. It will cover all 11 learning objectives detailed within the syllabus.

It should be possible to pass the exam without any prior knowledge of the subject, given sufficient time studying the texts in the core reading list, though clearly some experience of railways will be an advantage.

The Examination

The examination is computer based and can be taken on any internet connected device and will be undertaken as a remote exam in March 2022. Unlike advanced modules B, C & D, you do not need to be a member of the IRSE to take the exam. The IRSE awards the Certificate in Railway Control Engineering Fundamentals to all those who pass the exam.

All the knowledge required to pass the exam can be gained by studying the "Essential Reading" section of the Reading List for the Certificate (Module A). This does not mean that every question will be a simple test of recalling the facts from a document in the reading list. It does mean that if you have understood and remembered the fundamentals that are explained in the documents, you should be able to correctly answer the questions. Because the Certificate exam seeks to test breadth of knowledge, there is no choice of questions to answer. You will need to answer all the questions to have the best opportunity of passing it. So signalling specialists will need to learn something about communications and vice versa. Metro candidates will need to learn about main line principles and applications (e.g. level crossings) and vice versa. Most questions do not require a detailed knowledge of UK main line applications. The "Essential Reading" list covers the knowledge needed to answer the few questions that do.

If your specialist knowledge of the subject is limited, you are recommended to study everything in the "Essential Reading" list. If you are more experienced, you can afford to concentrate on areas where your knowledge is least. Do not assume that you can pass the exam by answering half the questions correctly because the pass mark could be as high as 75%. This ensures that candidates need to demonstrate a wide range of knowledge, though not at the depth of understanding expected in the advanced modules.

Candidates with a deep technical knowledge of parts of the syllabus should not "overthink" the questions. The correct answer will be the most straightforward of the options offered.

Allow enough time for your study. There are over 200 pages of text. We estimate that a candidate with limited initial knowledge of the subject would need over 50 hours to read and understand all the content. In a survey of candidates following the October 2020 exam, three times as many people said that they should have devoted more time to study compared with those who felt they had spent more time than necessary. The same survey showed that lack of knowledge underpinned all the biggest causes of difficulty with answering the questions.

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Well prepared candidates should be able to attempt all the questions with time to spare. This is because we want to reward knowledge rather than exam technique and we also want the exam to be as fair as possible to candidates having English as a second language.

Candidates will have remote proctoring (invigilation) software running during the exam. Details about this, and how to register beforehand will be sent to all candidates before the exam. This software will invigilate all candidates, monitoring them and their computers.

The Questions

Questions are not all multiple choice; there are several different types. More marks are awarded for correct answers to questions that are expected to take longer. The maximum marks available are stated clearly above each question. Negative marks will NOT be awarded for incorrect answers.

The Pass Mark

In a multiple choice type exam pure guesswork will gain some marks, so the pass mark is higher than in a traditional written exam. There is no pre-set pass mark, but it will be no higher than 75% and probably in the range 60% - 70%.

To make the exam as fair as we can, the actual pass mark is set by a moderation panel soon after the exam, using anonymised candidate data. This allows for any differences in difficulty between exams in different years (even though we try to make them consistent). There is no fixed percentage quota of passes or fails. If everybody scored over 75% they would all pass.

The pass mark will not be published.

The Practice Examination

This is made available to candidates in the weeks leading up to the examination. It includes all types of question and a representative selection of subjects from the syllabus. It uses the same software and presentation as the formal examination, so you are advised to use it to familiarise yourself with the exam experience. It has fewer questions than the formal examination and the time allowed is correspondingly shorter.

You will be offered two timed sessions. The questions for each session will be identical because the main purpose is to avoid any difficulty in using the software causing you to lose marks in the actual exam.

The practice examination will give you feedback on the correct answers and your marks, but do not use it as a valid predictor of your marks in the actual exam. There is no guarantee that you will find the questions to be of equal difficulty.

The Exam "Paper" and results

The exam "paper" and candidates' answers will not be made available to any candidates after the exam.

Candidates will be informed of their results as soon as practicable after the exam.

Results will be given in grades: "distinction", "credit" or "pass" for those who have successfully completed the exam, "near miss" and "fail" for those who have been unsuccessful. For those who gain "near miss" results, feedback will be given against each of the 11 learning objectives in the syllabus.

There is no opportunity to appeal against the results of Certificate in Railway Control Engineering Fundamentals and no refunds will be given for failure.