

Report on RCF Advanced Examinations in 2011

The percentages of correct answers in the various sections of the syllabus were

	2011	2010
Licensing Conditions	83	86
Technical Basics	64	64
Transmitters & Receivers	62	62
Antennas & Feeder	65	57
Propagation	71	74
EMC	70	67
Operating practice	78	78
Safety	80	81
Measurements	63	75
Overall	70	69

Licensing

The poorer result on licensing conditions is largely due to three specific topics.

The 25w power limitation on beacons is still not well known.

The fact that, when helping the User Services, contact is still limited to other amateurs is also not clear.

The correct response to a call from an overseas amateur on a frequency not available to UK amateurs was also not understood – The answer according to the licence is that the response must be on a frequency that is available to UK amateurs but this does not seem acceptable to the candidates.

Otherwise there has been little change from the previous year where /P caused some difficulty as did the change in the lifetime licence to permit any UK amateur to supervise any other UK amateur irrespective of licence level.

Technical basics, transmitters and receivers

It is disappointing that the technical subjects causing problems in previous years are still present - the relation between frequency and period, vector addition and peak inverse voltage in rectifier circuits. Poor answers to potential divider questions suggest that the idea of potential drop with progress round a circuit has not been grasped.

The function of the transistor in an oscillator circuit is not well understood. Deviation in FM transmission again caused problems, as did a question on the effect on the PA from using a high level of audio compression. Second channel problems and how to choose an IF to minimise them caused difficulty. Many of these less well answered questions relate to the transmitter or receiver as a system rather than as a collection of individual circuits.

Feeders and Antennas

One question, about the length of one half of a dipole, was badly answered either because candidates chose the length of the whole dipole or because they made no allowance for end effects. Return loss questions continued to cause difficulties, possibly exacerbated by the need to convert ratios to dB.

Propagation

In Propagation there was some doubt about which frequencies are absorbed by the D layer.

EMC

In EMC a question about so-called passive intermodulation products is still causing problems. The quarter wave stub as a notch filter was not clearly understood.

Operating

In Operating Practice a question on the use of an attenuator to check whether a nearby transmitter or the local receiver was causing intermodulation products was poorly answered.

The Safety section was well answered.

Measurements

In the Measurements section the proportion of correct answers was generally some 10 % below last year's level. The calculation of voltmeter series resistors and their effect on the accuracy of readings caused some problems; and two questions about oscilloscope readings were poorly answered. The definition of pep was not well known.

Examination Committee April 2012