

The Radio Amateurs' Exam is divided into two parts: the first assesses knowledge of the licencing conditions while the second assesses technical competence. Both sections require a pass or the exam will be failed as a whole.

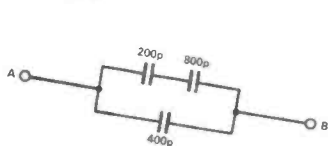
The questions given here should be answered without any reference to textbooks or other teaching aids. Don't cheat as you won't be able to when you sit the real exam!

Simply ring or tick the correct answer options. Look in next month's issue of Ham Radio Today to see if you would have got your ticket.

- 1) Many VHF and UHF repeaters have a pause between the end of audio transmission and the generation of a tone, usually "K" or "T". The reason for this is:
- it takes time for the repeater to switch from transmit to receive mode
  - to give the opportunity for other stations to use the repeater
  - to identify the repeater
  - to give the operator time to switch from transmit to receive mode

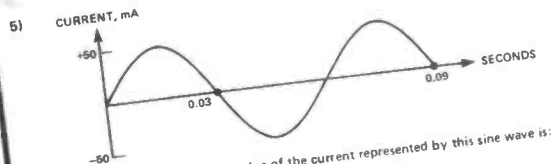
- 2) Using the recommended radio-telephony phonetic alphabet G2MUR would be sent as:
- Golf 2 Mike Uniform Radio
  - Golf 2 Mexico Uniform Radio
  - Golf 2 Mike Uniform Romeo
  - Golf 2 Mexico Uniform Romeo

- 3) In a series tuned circuit with an inductance of  $400\mu\text{H}$  and a capacitance  $144\text{pF}$ , the resonant frequency will be:
- $66.3\text{kHz}$
  - $663\text{kHz}$
  - $0.0663\text{MHz}$
  - $6.63\text{MHz}$



The effective capacitance between terminals A and B is:

- $1400\text{pF}$
- $600\text{pF}$
- $285\text{pF}$
- $560\text{pF}$



The frequency and RMS value of the current represented by this sine wave is:

- $16\text{Hz}$   $70.7\text{mA}$
- $11\text{Hz}$   $35.4\text{mA}$
- $16\text{Hz}$   $35.4\text{mA}$
- $33\text{Hz}$   $70.7\text{mA}$

- 6) The current gain of a transistor used in a common collector (emitter follower) connection is 50. The external emitter resistance to ground is  $10\text{K}\Omega$ . The device input resistance will be approximately:

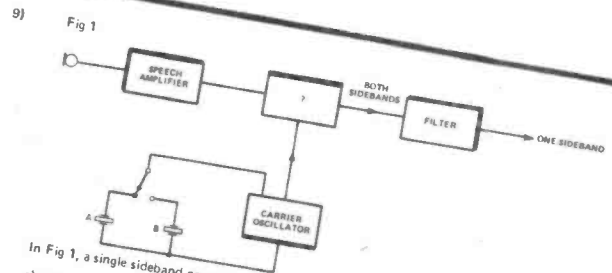
- $500\text{K}\Omega$
- $200\Omega$
- $5000\Omega$
- $5\text{M}\Omega$

- 7) A transistor amplifying with an efficiency of 50% or less is likely to be operating in:

- class A
- class AB
- class B
- class C

- 8) If the input frequency to the mixer stage of a radio receiver is  $1.8\text{MHz}$  and the required intermediate frequency is  $470\text{kHz}$ , the local oscillator frequency should be tuned to:

- $470\text{kHz}$
- $1800\text{kHz}$
- $2270\text{kHz}$
- $2740\text{kHz}$



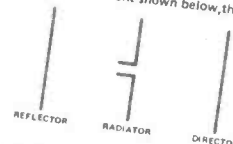
In Fig 1, a single sideband generator, what label should be given to the box marked:

- unbalanced modulator
  - balanced modulator
  - buffer amplifier
  - voltage controlled attenuator
- 10) In Fig 1, what is the purpose of the two components marked A and B:
- to switch frequency bands
  - to switch from transmit to receive
  - to provide upper and lower sidebands
  - to allow for repeater frequency shift

- 11) A  $30\text{MHz}$  half wave dipole has an input impedance of about  $80\Omega$  when the length  $L$  and height  $H$  are:

	L metres	H metres
a)	5	2.5
b)	2.5	5
c)	2.5	2.5
d)	5	5

- 12) In the Yagi directional aerial arrangement shown below, the director is of length:
- $A/2$
  - $A$
  - more than  $A/2$
  - less than  $A/2$



- 13) Tropospheric propagation is usually the major mode for:
- frequencies below  $30\text{MHz}$  for local communications
  - frequencies above  $50\text{MHz}$  for long-distance communications
  - frequencies above  $1\text{GHz}$
  - frequencies above  $50\text{MHz}$  for line-of-sight communication

- 14) In order to measure the peak envelope power by the "two tone" test method, the following equipment is needed:

- an audio oscillator generating two tones, a dummy load and an oscilloscope
- a dummy load and an oscilloscope
- a dummy load and an audio oscillator generating two tones
- an audio oscillator operating at two known frequencies

- 15) A milliammeter  $M$  having a full scale deflection of  $5\text{mA}$  is to be used as a voltmeter measuring up to  $200\text{V}$ , the circuit needed will be:

