

Intermediate Licence Mock Exam Paper

This paper consists of 45 questions, Duration 75 minutes.

INSTRUCTIONS TO CANDIDATES

All questions have equal marks and all questions should be attempted.

Each question has 4 possible answers, identified 'A' 'B' 'C' and 'D'. Only one answer is correct, the others are wrong. You should decide which of the 4 answers is the correct one and mark the answer box for each question accordingly.

If you decide answer 'C' is correct, show this by ticking in the box marked 'C'

A [] A [✓]

B [] B []

If you then change your mind, shade out the tick and tick the box for your new choice.

C [✓] C [■]

D [] D []

The Schedule to the licence may be used to help answer any question.

You may also use a calculator.

This paper will contain your answers and must be handed in at the end of the assessment.

Please check the details below before the start.

Family Name:	
First names:	
Date of birth:	
Candidate Number:	
Test centre location:	EX144 – Danbury Village Hall, Danbury, Essex
Date of Test:	23-May-2013

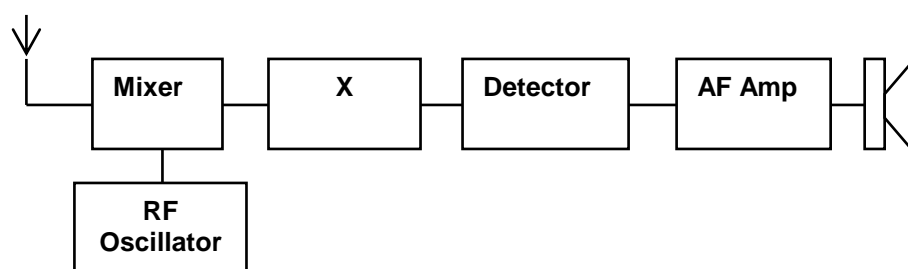
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1. The diagram below shows the block diagram of a t.r.f. (straight) receiver. To which block is the aerial connected ?



- A [] Detector
 B [] Tuned Circuit.
 C [] Audio amplifier.
 D [] Transducer

2. The diagram below shows the block diagram of a superhetrodyne receiver for a.m. signals. What is block X.



- A [] BFO
 B [] I.F.Amp
 C [] Carrier Insertion Oscillator
 D [] SWR meter

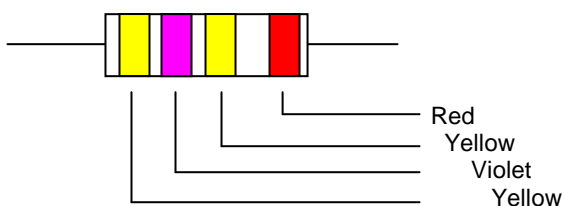
3. Which one of the following is not a valid UK amateur callsign:-

- A [] MJ0ABC/A
 B [] 2I1MMM/P
 C [] G1MMM/AM
 D [] MD6MMM/M.

4. When receiving an ssb telephony station it is necessary to

- A [] Switch on the c.i.o and tune the receiver until the signal is intelligible.
 B [] Ensure that the a.f. gain and r.f. gain controls are set at maximum.
 C [] Tune in the signal for maximum deflection on the S meter.
 D [] Turn down the squelch control to minimum.

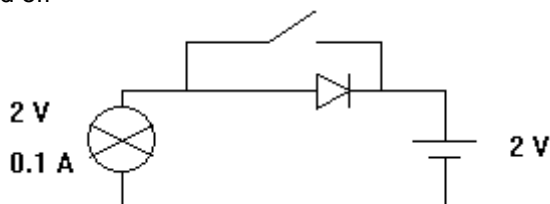
5. The value of the resistor is



- A [] 2400 Ohms
 B [] 47000 Ohms
 C [] 470000 Ohms
 D [] 2.4 MOhms

6. When the switch is closed the lamp will

A ☐ Light brightly
 B ☐ Remain off
 C ☐ Glow dimly
 D ☐ Flash on and off

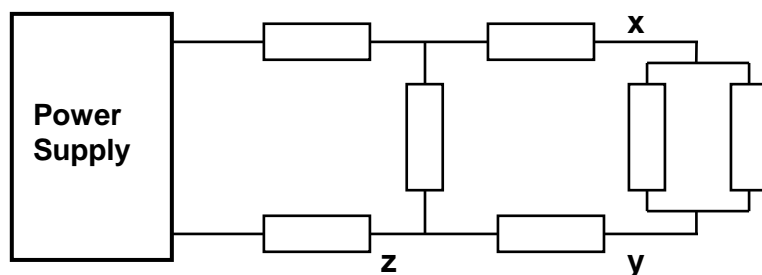


7. A multimeter has several ranges. Which range should be used to measure the secondary voltage of a transformer labelled 8V, 3A ?

A ☐ 0-10 V dc
 B ☐ 0-10 A dc
 C ☐ 0-10 V ac
 D ☐ 0-10 A ac

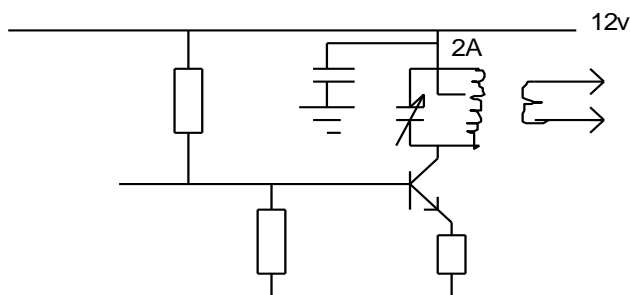
8. The total current can be measured on an ammeter by connecting the meter

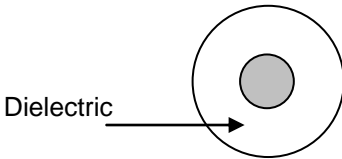
A ☐ Between points x and y
 B ☐ To the two wires resulting when the wire at point x is cut
 C ☐ Across the terminals of the power supply
 D ☐ To the two wires resulting when the wire at point z is cut.



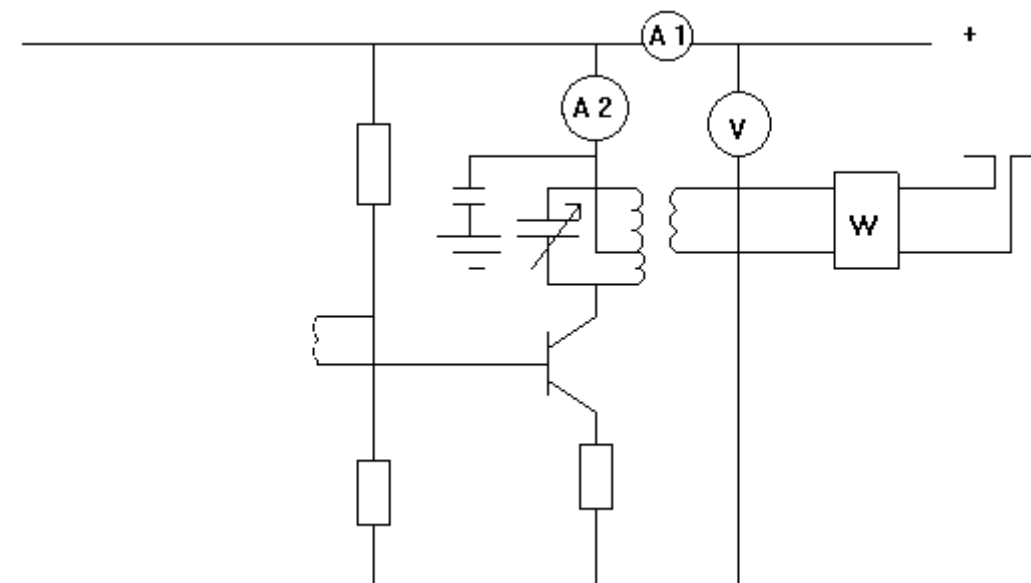
9. The d.c. input power of the transistor circuit below is

A ☐ 48 Watts
 B ☐ 24 Watts
 C ☐ 12 Watts
 D ☐ 6 Watts



10. In order to obtain accurate readings when using an analogue test meter to measure resistance, it is important to
- A ☐ Ensure the meter is set to the lowest current range
 - B ☐ Adjust the meter to full scale with the test prods shorted together
 - C ☐ Reverse the test prods at the point where they are connected to the meter
 - D ☐ Measure the resistance of the component with the power switched on
11. A ground plane antenna with four horizontal radials has a polarisation which is
- A ☐ Circular
 - B ☐ Horizontal
 - C ☐ Vertical
 - D ☐ Omni
12. The maximum distance of communication of an fm signal on the 433 MHz band would typically be
- A ☐ 20 km
 - B ☐ 200 km
 - C ☐ 2000 km
 - D ☐ 20,000 km
13. The diagram shows the cross-section of a length of coaxial cable used to feed the unbalanced antenna system. The dielectric between the inner and outer conductors is likely to be made of
- A ☐ Polythene
 - B ☐ Polystyrene
 - C ☐ Silicon
 - D ☐ Polyvinylchloride
- 
14. The purpose of an antenna tuning unit is to
- A ☐ Tune the antenna
 - B ☐ Tune the antenna and transmitter
 - C ☐ Match the antenna system to the transmitter
 - D ☐ Match the antenna to the feeder.
15. A wavelength of 3cm corresponds to a frequency of
- A ☐ 150kHz
 - B ☐ 10GHz
 - C ☐ 10MHz
 - D ☐ 3GHz.
16. Which of the following is not valid for an Intermediate Licensee
- A ☐ 2M0MMM/A
 - B ☐ 2M0MMM/M
 - C ☐ 2M0MMM/MM
 - D ☐ 2M0MMM/P

17. The third harmonic of a transmitter operating on 21.10 MHz is
- A [] 7.033 MHz
 - B [] 63.3 GHz
 - C [] 63.3 MHz
 - D [] 21.10 kHz
18. Which one of the following services could be affected by interference from the second harmonic of a transmitter operating on 3.58 MHz
- A [] Medium Wave
 - B [] Shortwave radio
 - C [] SSB
 - D [] Television
19. The rms voltage and current are measured around a capacitor. Their ratio will give
- A [] Its resistance
 - B [] Its impedance
 - C [] Its reactance
 - D [] Its heat dissipation
20. The most effective way for checking for the presence of harmonic radiation from a transmitter operating on 1.95 MHz is by
- A [] Noting the readings of the forward and reverse current on the s.w.r. meter
 - B [] Asking a remote station to listen on multiples of the transmitter frequency
 - C [] Connecting a filter between the transmitter and the antenna system
 - D [] Using a general coverage receiver to listen on 3.90 MHz, 5.85 MHz and 7.8 MHz
21. The circuit shows the power amplifier stage of a low power transmitter, the rf power output is measured using which of the following meters
- A [] A1 and V
 - B [] A2 and V
 - C [] V and W
 - D [] W only

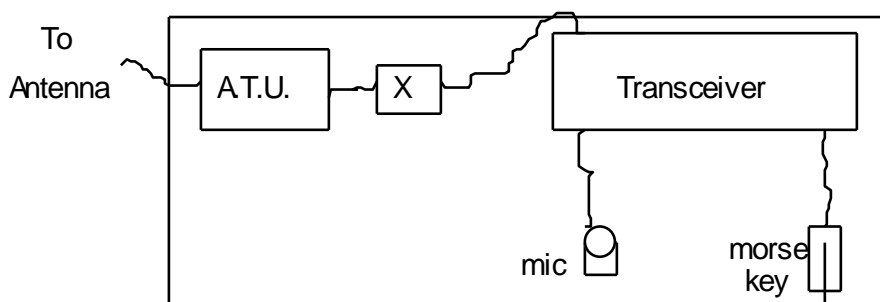


22. Sidebands are produced when
- A ☐ A transmitter is operating very close to the band edge.
 B ☐ The antenna matching unit is being adjusted
 C ☐ A transmitter is being modulated
 D ☐ A station replies on an adjacent frequency
23. In a single side band transmitter, the purpose of the balanced modulator is to
- A ☐ Allow only one side band to pass
 B ☐ Produce both side bands
 C ☐ Take out the carrier
 D ☐ Amplify the modulation
24. Which one of the following would lessen the possibility of radio frequency (rf) energy entering the mains supply
- A ☐ An indoor antenna
 B ☐ A low pass filter between the transmitter and the antenna tuning unit
 C ☐ A high pass filter between the transmitter and the antenna tuning unit
 D ☐ A low pass filter between the transmitter and its power supply unit
25. A good rf earth system is
- A ☐ The earth connection on a 3 pin mains plug
 B ☐ The neutral connection on a 3 pin mains plug
 C ☐ The central heating system pipes
 D ☐ a direct low resistance connection to earth
26. An Interference investigation log entry is shown. If another station is logged as being received at 10.15 p.m. local time on the same day, what would be the entry in the second column of the log ?

Date	Start Time UTC	End Time UTC	Band	C/sign	Remarks
14.6.95	2105	2106	433	G0IPU	no reply

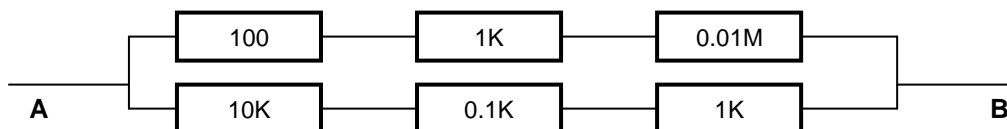
- A ☐ 10.15
 B ☐ 21.15
 C ☐ 22.15
 D ☐ 23.15
27. What does the code QRL mean ?
- A ☐ I am using low power
 B ☐ Please leave the frequency
 C ☐ The local time is...
 D ☐ The frequency is in use

28. The recommended phonetic spelling for the word EARTH is
- A [] England America Russia Tokyo Holland
 - B [] Echo Alpha Radio Tango Hotel
 - C [] England Alpha Roger Tango Hotel
 - D [] Echo Alpha Romeo Tango Hotel
29. When distributing QSL cards to stations overseas the cards should be sent to the
- A [] The Radio Society of Gt. Britain QSL Bureau
 - B [] National radio society of the overseas country
 - C [] Ofcom
 - D [] Overseas branch of the Post Office
30. An initial call on morse should be transmitted as follows
- A [] BK BK BK BK BK G9XYZ G9XYZ G9XYZ G9XYZ G9XYZ R R
 - B [] BK G9XYZ G9XYZ G9XYZ G9XYZ G9XYZ G9XYZ G9XYZ K
 - C [] CQ CQ CQ de G9XYZ CQ CQ CQ de G9XYZ K
 - D [] CQ CQ CQ CQ CQ CQ CQ CQ CQ CQ CQ CQ de G9XYZ R
31. Which band would be suitable for a contact with the United States of America during a mid-winter afternoon during a sunspot maximum
- A [] 1.95 - 2.00 MHz
 - B [] 28.100- 28.500 MHz
 - C [] 50.620- 51.75 MHz
 - D [] 433.000- 435.000 MHz
32. Diagram shows the top view of a typical amateur radio station for morse and telephony. What is "X"
- A [] An absorption wavemeter
 - B [] An oscilloscope
 - C [] A key click filter
 - D [] An s.w.r. meter



33. Which one of the following should be used to make the connections between an antenna tuning unit, low pass filter and a transmitter
- A [] Coaxial cable
 - B [] Twin feeder
 - C [] Stranded copper wire
 - D [] Solid copper wire

34. What is the total resistance between point A and B ?



- A [] 22.2 k Ω
 B [] 5550 Ω
 C [] 11.1 k Ω
 D [] 10.1 k Ω

35. Why should screened cable be used to connect a microphone to a modulator ?

- A [] To prevent r.f. energy entering the modulator
 B [] To provide a low resistance connection
 C [] To match correctly the microphone to the modulator
 D [] To ensure the operator is protected from electric shock

36. When putting a ladder against a wall, the correct offset to height ratio is

- A [] 1:1
 B [] 1:4
 C [] 4:1
 D [] 1.2:1

37. What action should be taken if smoke comes from a mains operated power supply

- A [] Call the fire brigade
 B [] Disconnect the unit from the mains
 C [] Shut all doors and windows
 D [] Pour water over the unit

38. We wish to receive a signal on 7.040 MHz, the intermediate frequency in the receiver is 1.410 MHz. What frequency would the receiver local oscillator be tuned to?

- A [] 2.820 MHz
 B [] 14.080 MHz
 C [] 8.450 MHz
 D [] 9.860 MHz

39. On which bands may the holder of an Intermediate Amateur Licence transmit

- A [] All those in the RSGB bandplan
 B [] All in the schedule between 136 kHz and 134GHz
 C [] 500kHz, 5MHz and Microwaves
 D [] All those in the relevant schedule

40. If an Ofcom representative requires that an Amateur Radio Station Log be kept to assist an interference investigation, what parameters must be recorded ?

- A [] Time in UTC, Frequency, and details of tests performed
 B [] Time, Band, Antenna direction
 C [] Whatever Ofcom require
 D [] Time, Frequency, Power and Mode

41. During transmissions, the licensee shall transmit the call sign of the station at the beginning of each period of communication and at intervals of
- A ☐ 5 min
 - B ☐ 10 min
 - C ☐ 15 min
 - D ☐ 30 min
42. The validation period for an Amateur Radio Intermediate Licence is
- A ☐ Every year
 - B ☐ Every 5 years
 - C ☐ Any period upto a maximum of every 5 years
 - D ☐ Not necessary as it's a Lifetime Licence
43. Where can I not transmit to a satellite
- A ☐ within 100km of Charing Cross
 - B ☐ 10.48 GHz
 - C ☐ 5840 MHz
 - D ☐ 145000 kHz
44. Amateur satellites can only be used when they are:
- A ☐ Above the horizon at the sending station
 - B ☐ Above the horizon at the receiving station
 - C ☐ Above the horizon at both sending and receiving stations
 - D ☐ Without Doppler shift
45. Who may operate an Intermediate Amateur Radio Station
- A ☐ Any person holding an Amateur Radio (Foundation) Licence
 - B ☐ Any person holding an Amateur Radio (Intermediate) Licence
 - C ☐ The licensee personally
 - D ☐ The licensee and any person under the supervision of the Licensee

NOW RE-CHECK YOUR ANSWERS