

# Amateur Radio Examination Foundation Level

Candidate:  
Candidate DoB:  
Centre:  
Exam Date:

This paper consists of 26 questions

**Time Allowed:** 55 minutes.

<p>Candidate Declaration.</p> <p>I confirm that this is all my own work and that I have followed the rules of the examination.</p> <p><i>I understand that breaches of the Examination rules may result in disqualification or other penalty and that breaches by the Examination Centre may invalidate the examination.</i></p>	<p>Candidate's signature.</p>
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## INSTRUCTIONS TO CANDIDATES

You should have 3 items.

1. This Examination Paper
2. An Optical Mark Sheet
3. Reference Data for use in the Foundation Level Examination

You will need a pen, an HB pencil and an eraser. You may use a silent, non-programmable calculator.

Check that your personal details on this Examination Paper and your Optical Mark Sheet are correct and sign both using your pen before the examination begins.

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 correct and mark the answer box for each question accordingly.

Your answers should initially be marked lightly in HB pencil on the Optical Mark Sheet. Errors should be corrected using your eraser.

If you decide answer 'C' is correct, show this by marking box 'C' using an HB pencil.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>	D <input type="checkbox"/>
If you change your mind before inking-in, rub out the mark and ink-in the box of your new choice	A <input checked="" type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>	D <input type="checkbox"/>
To confirm your original answer ink-in the whole box.	A <input type="checkbox"/>	B <input type="checkbox"/>	C <input checked="" type="checkbox"/>	D <input type="checkbox"/>

When you are satisfied with your answer, shade in the whole box with **black ink**. Do **NOT** make any mark outside the box. **Once you have inked-in the Optical Mark Sheet, no changes can be made.**

The Reference Data booklet contains the Schedule to the licence, the Band Plans, the Frequency to Wavelength Conversion Chart and the Frequency Allocation Table, which may be used to help answer any question.

**The Optical Mark Sheet is designed to be machine marked and will provide the result for this Examination. It must be completed during the time allowed for the Examination.**

**This paper, the Optical Mark Sheet and the Reference Data Booklet must be handed in at the end of the Examination.**

## **Notice to candidates**

You must not talk to or distract any other candidate in the exam room.

You are not allowed any assistance in answering exam questions and the Invigilator is not permitted to discuss examination questions. If you have a reader, the reader may read the questions to you but they cannot explain them.

If you need other assistance, please raise your hand and talk quietly to an Invigilator when approached.

If you wish to challenge an exam question please advise an Invigilator. They will not be able to help you answer the question, but will pass your challenge to the examination office.

You may not leave the exam room without permission and may not re-enter the room unless you have been escorted by an Invigilator at all times.

You must use black ink for your final answers.

Any calculations should be done on the Examination Paper  
NOT the Optical Mark Sheet.

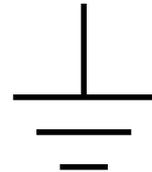
- 1 A Welsh amateur, MW6ABC, operating from a hotel on the Isle of Man should give his call sign as
- A MM6ABC/A
  - B MD6ABC/A
  - C MW6ABC/A
  - D M6ABC/A
- 2 You should give your call sign to identify your station
- A after a pause in transmitting of more than five minutes
  - B at the end of a period of operating your station
  - C as frequently as is practicable
  - D at 0, 15, 30 and 45 minutes past each hour on the clock
- 3 As a Foundation licence holder you are operating your radio when a friend G0ABC calls at your house. In order to use the higher power allowed by a Full licence G0ABC must
- A give permission but need not stay with you
  - B write his name and callsign in your log book
  - C personally identify the station before you operate
  - D remain in your presence while you are operating.
- 4 A neighbour decides to tell the authorities that you are interfering with his television without telling you. An inspector turns up who is likely to be from
- A Ofcom
  - B TV licensing
  - C the BBC
  - D The RSGB.
- 5 Which amateur band below 50MHz has Primary status and is available on the basis of non-interference to other services outside the UK.
- A 7.1 – 7.2MHz
  - B 1.81 – 1.83MHz
  - C 1.85 – 2.00MHz
  - D 0.1357 – 0.1378MHZ
- 6 On which of the frequencies listed are you allowed to operate in London with a transmit power restriction of 10W e.r.p.
- A 0.1360MHz
  - B 70.125 MHz
  - C 430.875MHz
  - D 432.525MHz

7 An amateur transmitter in a lorry is drawing 8A from a 24V supply. What value of resistor would draw the same current from the same supply?

- A 0.33Ω
- B 3Ω
- C 8Ω
- D 192Ω

8 What does the symbol shown represent?

- A The 0V common line
- B An antenna
- C An earth connection
- D A battery of two cells.



9 The VHF radio band extends from

- A 300kHz to 3000kHz
- B 3MHz to 30MHz
- C 30MHz to 300Mhz
- D 300MHz to 3000MHz

10 A harmonic of a transmission is another RF signal at an exact multiple of the transmitted frequency. The third harmonic of an amateur transmission on 50.5MHz will be on 151.5MHz. Which radio users might suffer interference?

- A Other radio amateurs.
- B Air traffic controllers.
- C Maritime radio officers.
- D Radio astronomers.

11 The frequency of transmission of a simple transmitter is set by which stage?

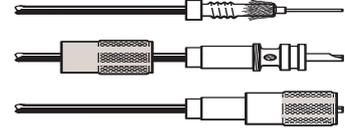
- A Audio stage.
- B Modulator.
- C RF power amplifier.
- D Oscillator.

12 Connecting a transmitter to an antenna that is not correctly matched could result in

- A damage to the transmitter output stage
- B frequency instability of the transmitted signal
- C poor or distorted audio at the distant receiver
- D standing waves that can damage the antenna.

- 13 The output from the RF amplifier and tuner stage of a simple radio receiver is connected to the
- A loudspeaker or headphones
  - B detector or demodulator stage
  - C audio amplifier stage
  - D antenna input to the receiver.

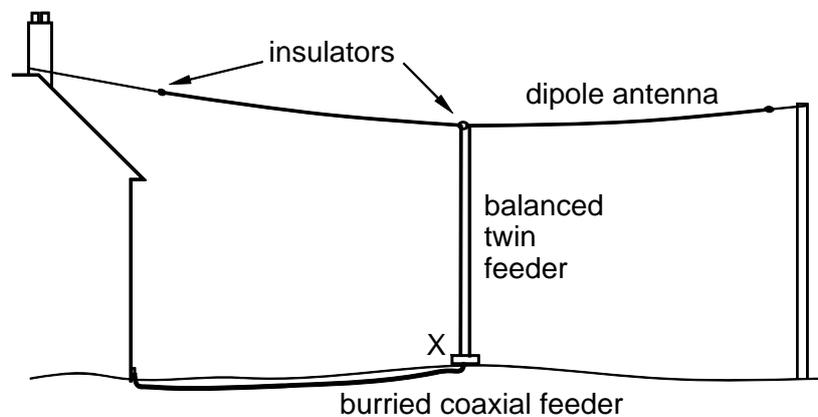
- 14 The braid of the cable used with the plug shown should be
- A carefully insulated so it does not touch the plug metalwork
  - B securely connected to the body of the plug
  - C securely connected to the centre pin of the plug
  - D folded back over the outer sheath outside the plug.



- 15 On a particular frequency the licence schedule limits the transmitted power to 10W e.r.p. What is the maximum allowable gain of the antenna if the hand-held transceiver is rated at 2.5W RF output and the loss in the feeder can be neglected?
- A 2 times
  - B 3 times
  - C 4 times
  - D 5 times

- 16 The drawing shows a dipole antenna with a twin feeder from the antenna to a box at ground level. A buried coaxial feeder completes the connection to the transceiver in the house. The box X should contain

- A a fuse
- B a balun
- C an SWR meter
- D a transmit/receive switch



- 17 Which statement about radio propagation is correct?
- A At VHF the radio signal can pass through a typical building and the signal strength will not vary much as the receiver is moved around the building.
  - B The signal strength received from a transmitter on a hilltop will be the same at 1km, 5km or 10km from the transmitter provided it is in clear sight.
  - C Buildings in a town can block VHF radio signals at ground level and better reception will be achieved on a higher floor.
  - d If a VHF signal is rather weak then switching to UHF with the same power and antenna gains is likely to result in a better signal.

- 18** The F2 layer of the ionosphere is the highest layer and extends upwards to a height of about
- A 4km
  - B 7km
  - C 70km
  - D 400km
- 19** Which frequency range is most likely to result in a piece of electronic equipment suffering from direct pickup.
- A Audio frequencies
  - B Medium wave radio frequencies
  - C HF radio frequencies
  - D VHF radio frequencies.
- 20** Which mode of transmission is LEAST likely to cause interference to nearby radio or electronic equipment?
- A Frequency modulation.
  - B Lower sideband.
  - C Amplitude modulation.
  - D Upper sideband.
- 21** The purpose of an RF earth is to
- A pass RF currents safely to earth rather than allowing them to flow into the mains supply
  - B ensure the operator is protected from excessive voltages should a piece of equipment suffer a failure
  - C allow a balanced antenna to properly function in a balanced mode without causing interference
  - D provide a suitable return circuit should a fault develop in the electricity company power supply cables.
- 22** Using the Phonetic Alphabet recommended in the licence the word 'CONTACT' is
- A Charlie, Oscar, November, Tango, Alpha, Charlie, Tango
  - B Charlie, Oscar, November, Twin, Alpha, Charlie, Twin
  - C Charlie, Oscar, Norway, Tango, Alpha, Charlie, Tango
  - D Charlie, Ontario, November, Tango, Alpha, Charlie, Tango
- 23** Repeaters utilise different transmit and receiver frequencies because
- A if they used a single frequency the listener would receive signals both from the sender and the repeater which could cause interference and distortion
  - B if they used a single frequency their transmit would overload their receiver and make it impossible to hear any caller
  - C users would be unable to check that the repeater was operating correctly by listening on its output frequency
  - D the licence does not allow repeaters to transmit and receive in the same band.

- 24** You hear a member of the radio club you belong to being abused on air. Another amateur has joined in to protect the abused person, you
- A can also join in the protection to add weight of numbers
  - B should press the ptt switch to try to block out the abuser
  - C inform the abuser that such language is not really acceptable
  - D are best advised to stay out of the matter and chat later.
- 25** A UK three pin BS1363 mains plug should be wired
- |   | Live  | Neutral | Earth            |
|---|-------|---------|------------------|
| A | Red   | Blue    | Green and Yellow |
| B | Blue  | Brown   | Green and Yellow |
| C | Brown | Blue    | Green and Yellow |
| D | Red   | Blue    | Brown            |
- 26** A friend is found in the club workshop slumped over the repair bench and does not respond to being called. If you can you should first
- A switch off the power to the workshop
  - B check your friend's pulse at his wrist or neck
  - C shake him gently in case he is simply asleep
  - D return to the main room to find a phone.

## Answers

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
B	C	D	A	B	C	B	C	C	D	D	A	B	B	C	B	C	D	D	A	A	A	B	D	C	A