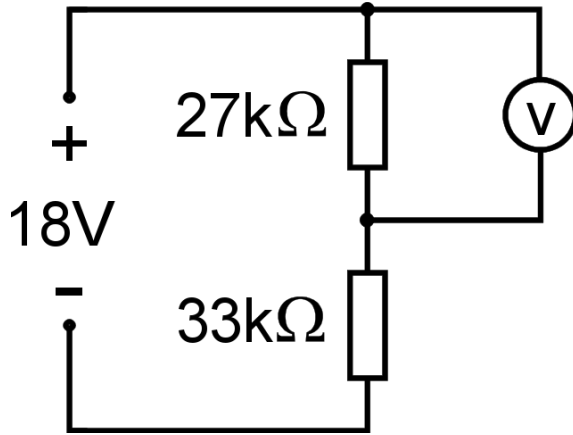


- 1.** Under what conditions may John, an Intermediate licensee use a transmitter belonging to Sarah at her house?
- 1B1.5256.1
N149589
- A.** ONLY when training for an Advanced licence
 - B.** ONLY under Sarah's supervision
 - C.** When John gives his own callsign and follows the terms of his own licence
 - D.** ONLY if Sarah gives written permission.
- 2.** In an international disaster you are permitted by your licence to
- 1C1.7590.2
N149589
- A.** send a message to an overseas station on behalf of a person who is not an amateur
 - B.** encrypt your messages so they can only be understood by the intended recipient
 - C.** ignore the requirement to transmit your callsign as frequently as practicable
 - D.** operate outside the UK amateur bands to contact an amateur in another country.
- 3.** A licensed amateur radio station must
- 1D1.5283.1
N149589
- A.** be kept locked when not in use
 - B.** be available in times of emergency
 - C.** avoid being audibly overheard late at night
 - D.** not cause undue interference to other radio users.
- 4.** Your transmitter is capable of unattended digital operations. The licence says this
- 1E1.8050.2
N149589
- A.** should be limited to a power of 500mW e.r.p. pep
 - B.** must not be left unattended for more than 2 hours
 - C.** is not for general unsupervised use by other amateurs
 - D.** must not be left unattended for more than 30 minutes.

- 5.** Operation in a foreign country requires a UK Intermediate amateur to
- 1F1.7418.2
N149589
- A.** have held their licence for at least a period of one year
 - B.** obtain permission or a licence from the authorities of that country
 - C.** carry a translation of their UK licence and a copy of the local licence terms
 - D.** be over 14 years of age and have at least 6 months validity remaining on their passport.
- 6.** Which of the following Intermediate licence frequency allocations have primary status?
- 1G1.5328.3
N149589
- A.** 10.100-10.150MHz
 - B.** 51.00-52.00MHz
 - C.** 430.0-431.0MHz
 - D.** 144.0-146.0MHz.
- 7.** The tolerance band on a component describes
- 2A1.7422.2
N149589
- A.** the change in value in parts per million for a one degree centigrade temperature change
 - B.** how the value of the component may change over its specified operational life
 - C.** how much the actual value of that component might differ from its nominal marked value
 - D.** the temperature range over which the component remains at its marked value.

8. The voltage across the 27kΩ resistor is about

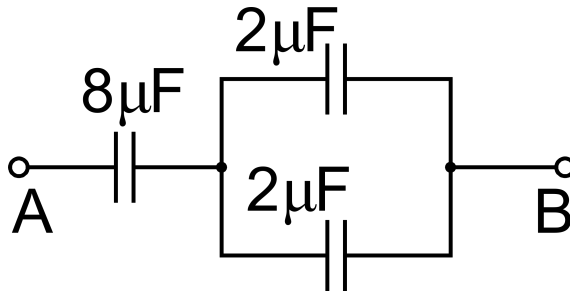
2C2.5405.1
N149589



- A. 8V
- B. 12V
- C. 0V
- D. 4V.

9. What is the capacitance between points A and B in the circuit shown?

2D2.7425.5
N149589



- A. 9μF
- B. 12μF
- C. 2.7μF
- D. 1.3μF.

10. Three inductors, each having an inductance of 600μH, are connected in parallel, with no mutual coupling. The combined value of inductance is

2D5.5451.1
N149589

- A. 200μH
- B. 100μH
- C. 1.8mH
- D. 600μH.

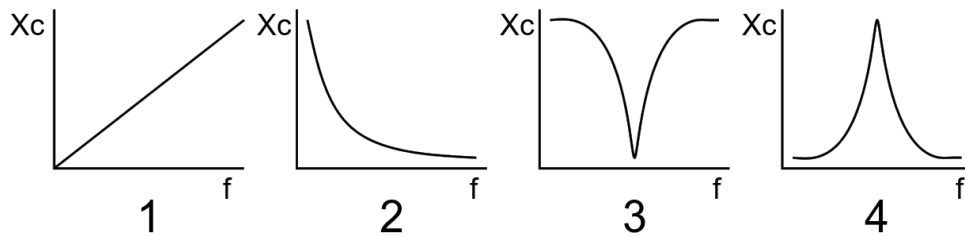
11. If you measure the output of an oscillator you have just built and the peak of the sinewave is 2.0V, the RMS value would be approximately

2E3.5493.1
N149589

- A. 2.8V
- B. 0.7V
- C. 4.0V
- D. 1.4V.

12. Which graph shows the change in reactance of a capacitor as the frequency increases?

2E4.7431.5
N149589



- A. Graph 1
- B. Graph 2
- C. Graph 3
- D. Graph 4.

13. A 10MHz transmitter feeds a $\lambda/2$ dipole. What is the length of the antenna? (Take the velocity of radio waves as 3×10^8 m/s (300,000,000 metres per second))

2E7.5528.1
N149589

- A. 15 metres
- B. 20 metres
- C. 10 metres
- D. 30 metres.

14. Sampling an analogue signal at about one and a half times the highest frequency present will

2F1.7391.2
N149589

- A. capture all the detail required to represent the signal
- B. be a good compromise between capturing the signal and too much data
- C. fail to capture sufficient detail to represent the signal
- D. produce more digital data than is needed to represent the signal.

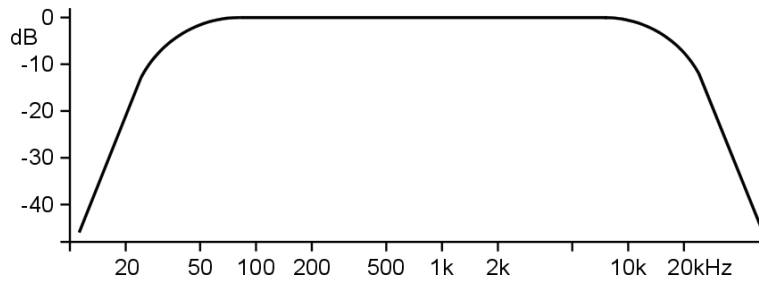
15. A transformer has 1000 turns on the primary and 50 turns on the secondary. The primary is connected to an AC supply. The potential difference across the secondary will be

2G1.5543.1
N149589

- A.** greater than the primary
- B.** lower than the primary
- C.** the same as the primary
- D.** zero.

16. The graph shows the frequency response of an audio amplifier in a music system. It is an example of

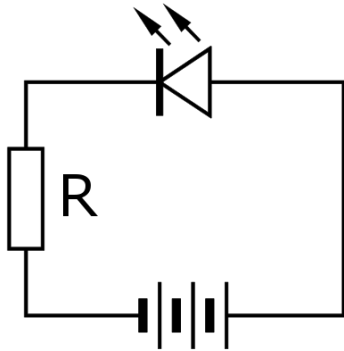
2H5.5588.1
N149589



- A.** a band stop filter
- B.** a band pass filter
- C.** a high pass filter
- D.** a low pass filter.

17. Reversing the battery connection in the diagram will cause the LED to

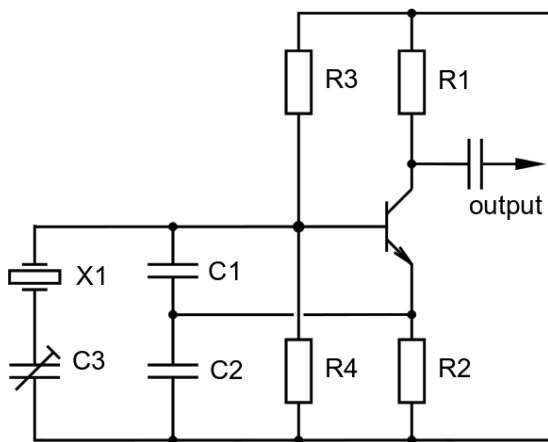
211.5605.1
N149589



- A. change colour
- B. turn off
- C. light normally
- D. reduce to half brightness.

18. In the circuit shown the frequency can be adjusted

215.7452.5
N149589



- A. by changing the ratio of C1 and C2
- B. by changing the bias set by R3 and R4
- C. over most of a chosen amateur band
- D. over a very limited range by C3.

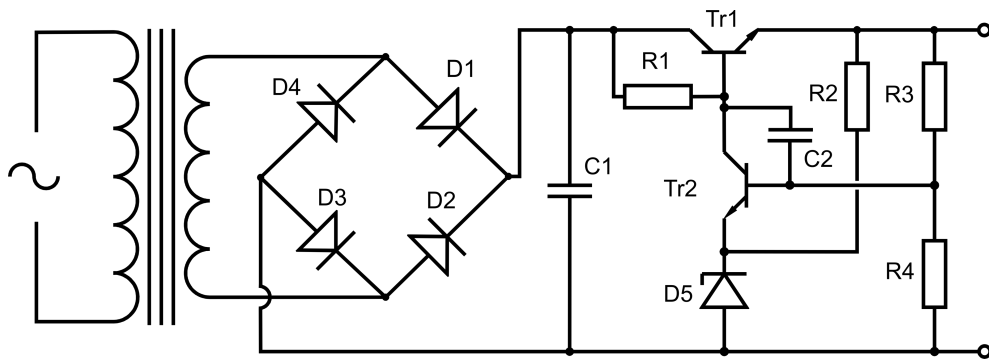
19. In a mains power supply unit the purpose of the reservoir capacitor is to

2J3.5647.1
 N149589

- A. reduce the 230V AC to 12V AC
- B. smooth the DC pulses
- C. change the AC to pulses of DC
- D. reduce the mains 230V AC to 12V DC.

20. The circuit shown is best described as

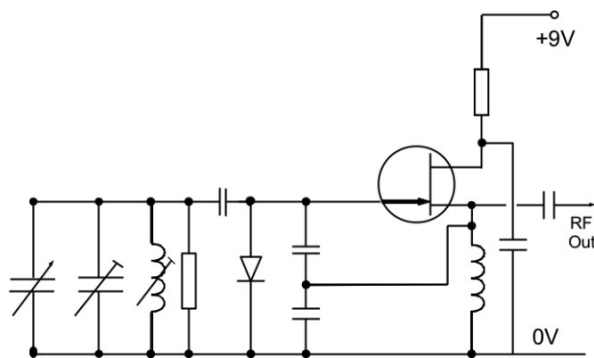
2J4.7461.6
 N149589



- A. a smoothed and unregulated power supply
- B. a switched mode power supply
- C. an integrated circuit linear power supply
- D. a discrete component linear power supply.

21. The oscillator shown in the diagram is

3C1.5693.1
 N149589



- A. a variable frequency oscillator
- B. screened oscillator
- C. a fixed frequency oscillator
- D. a crystal oscillator.

22. When transmitting SSB, a balanced modulator is followed by

3E2.7555.2
N149589

- A.** a sideband filter
- B.** a buffer amplifier
- C.** an IF filter
- D.** a mixer.

23. Which one of the following is most likely to reduce “chirp” when operating a CW transmitter?

3G5.5783.1
N149589

- A.** Using a low pass filter after the PA stage
- B.** Using a low pass filter in the keying stage
- C.** Reducing the transmitted power
- D.** Ensuring that the RF oscillator power supply is well stabilised.

24. An SSB receiver is picking up a signal about 4kHz away from the signal to which it is tuned. This is an indication of

3H4.7561.3
N149589

- A.** poor selectivity in the receiver
- B.** a fault in the AGC circuits
- C.** a lack of adequate sensitivity
- D.** selection of the wrong sideband.

25. In a crowded band there are several radio signals all closely spaced in frequency. To select the wanted signal a superhet receiver uses tuned circuits in the

3I3.5834.1
N149589

- A.** audio amplifier
- B.** power amplifier
- C.** IF amplifier
- D.** beat frequency oscillator.

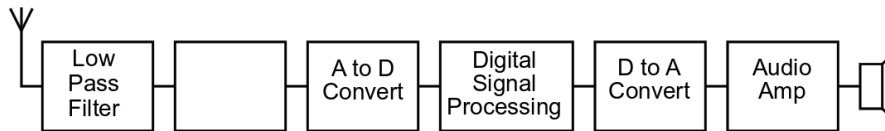
26. The volume from the loudspeaker of a radio receiver remains fairly constant even when the receiver is tuned between strong and weak signal. This is achieved by the

3L1.5874.1
N149589

- A. automatic gain control (AGC)
- B. signal level control (SLC)
- C. automatic level control (ALC)
- D. automatic frequency control (AFC).

27. The drawing is that of a software defined receiver. What is the function of the blank box?

3M3.7574.5
N149589



- A. Mixer
- B. IF amplifier
- C. Analogue to Digital Converter
- D. RF Low Noise Amplifier.

28. A transmitter with an output of 60W is connected to 20 metres of feeder with a loss of 6dB at 430MHz. The power reaching the antenna is approximately

4A2.5898.1
N149589

- A. 15W
- B. 54W
- C. 30W
- D. 10W.

29. The beam width of a Yagi antenna is the

4C2.5910.1
N149589

- A. length of the RF driven element
- B. average width of the reflector and director elements
- C. angle between the half power points of the radiated RF
- D. thickness of the load bearing pole.

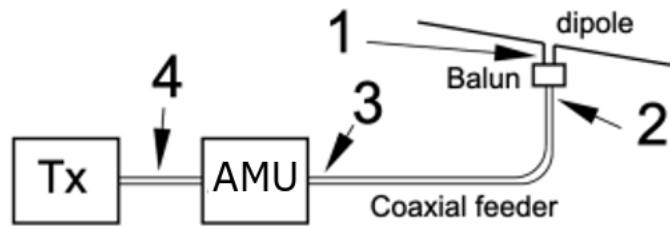
30. A dipole antenna is fitted with a total of four traps. It should present a reasonable feed impedance on

4D2.7842.2
N149589

- A. three bands
- B. five bands
- C. two bands
- D. four bands.

31. A transmitter is connected to an antenna via an AMU and Balun as shown in the drawing. Adjusting the AMU will affect the SWR at point

4F1.5963.1
N149589



- A. 1
- B. 2
- C. 4
- D. 3.

32. The direction of the electric field of a radio wave

5A3.5996.3
N149589

- A. is always vertical
- B. indicates the direction of propagation
- C. defines the polarisation
- D. is parallel to the magnetic field.

33. The ionisation of layers within the ionosphere is caused by

5B1.5998.1
N149589

- A. solar radiation
- B. areas of high pressure
- C. lightning discharges
- D. the rotation of the earth.

- 34.** What is the most likely cause of VHF multipath propagation?
- 5C3.7595.2
N149589
- A.** Ionospheric refraction
 - B.** Doppler shift
 - C.** Snow and ice
 - D.** Reflection off a building.
- 35.** The immunity of a domestic music system to amateur transmissions can be improved by
- 6A2.7596.2
N149589
- A.** connecting 10uF capacitors across the loudspeaker terminals
 - B.** fitting ferrite rings on the antenna feeder
 - C.** moving the system to the other side of the room
 - D.** filtering on the mains supply lead.
- 36.** A transmitter tuned at any frequency in an amateur band produces interference to a nearby baby monitor. This suggests that
- 6C1.6095.1
N149589
- A.** direct pickup might be the cause of the problem
 - B.** direct pickup cannot be the cause of the problem
 - C.** the test is being performed on the wrong amateur band
 - D.** wider bandwidth filters are required on the transmitter.
- 37.** Which device could be used to check for the second and third harmonics, when a transmitter is set to a frequency of 7.050MHz?
- 6D3.6125.1
N149589
- A.** An SWR meter
 - B.** An RF power meter
 - C.** An HF receiver
 - D.** A UHF receiver.
- 38.** Which ONE of the following would provide a good earth for a transmitter?
- 6E2.6134.1
N149589
- A.** A radiator or water pipe
 - B.** The earth connection on a 13A plug
 - C.** A copper rod in the ground out of doors
 - D.** The neutral connection on a 13A plug.

- 39.** Which of the following is a call sign prefix of a station in Canada?
- 7A3.6157.1
N149589
- A.** I
 - B.** VE
 - C.** EI
 - D.** W.
- 40.** A UK amateur was trying to make contact by satellite with a station on the west coast of the USA. Despite several attempts, when he could clearly hear his transmissions on the satellite downlink, the contact was never successful. A likely reason for this might be that the
- 7G3.6244.1
N149589
- A.** USA was too far way and the signals too weak to be heard
 - B.** two stations were using incompatible satellite prediction programs
 - C.** time difference between the two stations prevented them both being on-air at the same time
 - D.** satellite was not accessible from both stations at the same time.
- 41.** When installing a transceiver in a car it is advisable that you do NOT wear
- 8A8.7849.2
N149589
- A.** a tool belt
 - B.** gloves
 - C.** a metal bracelet
 - D.** a face mask.
- 42.** To prevent cuts from hand tools you must
- 8B2.6278.1
N149589
- A.** hold pieces of metal in a vice
 - B.** keep both hands behind the cutting edge
 - C.** use a soldering iron stand
 - D.** wear eye protection.
- 43.** When transmitting from a vehicle in a stationary or slow moving queue it is a requirement to consider
- 8D1.8055.2
N149589
- A.** the adequacy of the power supply
 - B.** the increased risk of interference
 - C.** the proximity of pedestrians
 - D.** reflections off adjacent vehicles.

44. A digital meter

9A3.6349.1
N149589

- A.** moves a pointer over a scale
- B.** is operated from a keyboard
- C.** displays the reading as numbers
- D.** contains a digital computer.

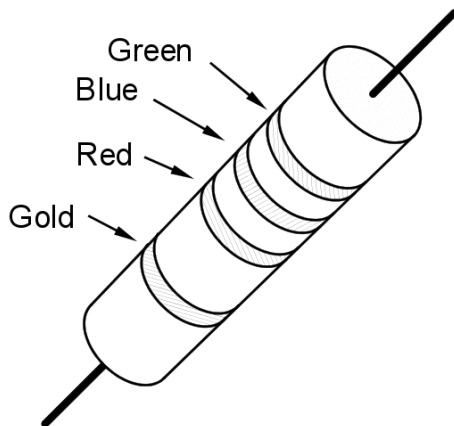
45. An antenna is stated to have a gain of 9dB. If 10W is fed to the antenna, the effective radiated power will be

9B1.6369.1
N149589

- A.** 9W
- B.** 19W
- C.** 80W
- D.** 10W.

46. This resistor is marked as having a value of

9C1.6403.1
N149589



- A.** 5600Ω
- B.** 560Ω
- C.** 56000Ω
- D.** 562Ω.