

## SECTION A

*This section contains 30 questions. Answer all.*

1. Section 33 of the Telecommunication Order 2001 states that any person who establishes, installs, maintains, provides or operates a telecommunication system or service within Brunei Darussalam without a license granted shall be guilty of an offence. Which of the following statements of conviction is CORRECT should a person commit an offence?
  - A. Any person guilty of an offence under this section shall be liable on conviction to a fine not exceeding \$10,000, imprisonment for a term not exceeding 1 year or both.
  - B. Any person guilty of an offence under this section shall be liable on conviction to a fine not exceeding \$50,000, imprisonment for a term not exceeding 3 years or both.
  - C. Any person guilty of an offence under this Order or any regulations made thereunder for which no penalty is expressly provided shall, in addition to the forfeiture of any article seized, be liable on conviction to a fine not exceeding \$10,000, imprisonment for a term not exceeding 3 years of both.
  - D. No fine is liable at all.
  
2. Amateur Radio service is defined as:
  - A. A radio-communications service in which a station is used for the purpose of self-training, intercommunication and technical investigations carried out by amateurs.
  - B. A radio station that is owned by a commercial entity. To be qualified as such, it must also be advertiser-supported and for-profit.
  - C. A conventional radio system uses a dedicated channel (frequency) for each individual group of users for public and commercial purposes.
  - D. A cellular service that can be used for voice and data.
  
3. If an amateur radio licensee changes his/her residential address or car licence plate number (where the radio equipment is placed), he/she should notify:
  - A. Royal Brunei Police Force.
  - B. Post Office.
  - C. AITI.
  - D. The local radio club.
  
4. Which of the following is NOT an offence against the Telecommunication Order 2001:
  - A. Selling radio equipment without a licence.
  - B. Operating unapproved equipment on an unlicensed band.
  - C. Operating an approved equipment with an expired operating licence.
  - D. Operating another operators equipment where both are licensed.

5. The classes of Amateur Radio License in Brunei are:
  - A. Novice, Advances.
  - B. Standard, Advanced.
  - C. Class 1, Class 3.
  - D. Novice, Technician.
  
6. "QRL?" is the Q-code for?
  - A. Where is your location?
  - B. Who is calling me?
  - C. Have you a message for me?
  - D. Are you busy?
  
7. If you purchase amateur radio equipment from outside the country, what is the right thing to do upon arrival at Royal Customs & Excise control post?
  - A. Bring in the said equipment without notifying Royal Brunei Customs and Excise official.
  - B. Pay import tax for the equipment.
  - C. Declare the equipment to the Royal Brunei Customs and Excise officials.
  - D. Bring the equipment directly to AITI officials.
  
8. An amateur radio licensee should renew their licence:
  - A. No renewal required.
  - B. Annually.
  - C. Quarterly.
  - D. Bi-annually.
  
9. What is the meaning of the term half-duplex operation?
  - A. Transmitting and receiving on the same frequency.
  - B. Transmitting and receiving over a wide area.
  - C. Transmitting on one frequency and receiving on another.
  - D. Transmitting one-way communications.
  
10. Which of the following must be true before an amateur station may provide information during a disaster?
  - A. The information must directly relate to the immediate safety of human life or protection of property.
  - B. When another amateur station declares a state of emergency.
  - C. The exchange of such information must be approved by a local emergency preparedness official.
  - D. None of the above.

11. The most common input/output frequency offset for repeaters in the 2-metre band is?
- A. 1.6 MHz
  - B. 0.6 MHz
  - C. 5.0 MHz
  - D. 0.4 MHz
12. What is the correct callsign prefix for Standard and Advanced Class Amateur Radio Licence respectively?
- A. V8A and V89.
  - B. V89 and V85.
  - C. V8N and V8M.
  - D. V8S and V8A.
13. For 40 meter band, which one of the following frequency band is correct?
- A. 21.550 – 21.650 kHz.
  - B. 21.000 – 21.450 MHz.
  - C. 7000 – 7200 MHz.
  - D. 7000 – 7200 kHz.
14. What is the validity period of a licence, temporary licence and an import permit for an Amateur Radio equipment from the date of issue respectively?
- A. 1 year, 1 month and 6 months.
  - B. 1 month, 3 months and 14 days.
  - C. 3 weeks 1 month and 6 months.
  - D. 1 year, 3 months and 14 days.
15. Ahmad and Rafi is having an amateur radio conversation. Which set of conversations below should they avoid:
- A. Hobbies, Education, and Entertainment.
  - B. Sport, Personal details and Socializing.
  - C. Weather, Location and Q-Codes.
  - D. Religion, Business, Politics, Racial and Ethnic Slurs.
16. Amateur operators are authorised to use:
- A. Bands authorised for amateur use.
  - B. Bands authorised for amateur and CB use only.
  - C. Any frequency that is not being used.
  - D. All frequencies allocated, including marine and aeronautical.

17. What does 'CQ' and 'DX' stands for?
- A. Calling all station and Wait.
  - B. Calling all station and Distance foreign countries.
  - C. Call quit/Closing down and Digital signal transmission.
  - D. Station call interference and Distance foreign countries.
18. Entries in the log book should *not* include:
- A. Date.
  - B. Time of commencement of operation.
  - C. Time of closing down of the station.
  - D. Signature of operator.
19. Amateur radio repeater frequencies in Brunei are assigned by?
- A. Local amateur radio club.
  - B. AITI.
  - C. Ministry of Transport & Communications.
  - D. International Amateur Radio Association.
20. Are you allowed to modify approved amateur radio equipment?
- A. Yes, with permission from the Royal Brunei Police Force and Royal Brunei Custom and Excise.
  - B. Yes, if the equipment is modified by a certified dealer.
  - C. No. Any equipment is not allowed to be modified, unless with written approval from AITI.
  - D. Once you have obtained a licence and type approval for your equipment, you can immediately modify.
21. Which of the following statement is correct:
- A. An amateur radio station may only be used to communicate with another private network radio station.
  - B. An amateur radio station may only be used to communicate with another broadcasting station.
  - C. An amateur radio station may only be used to communicate with another amateur radio station.
  - D. An amateur radio station may only be used to communicate with an illegal radio station.
22. What is the minimum age allowed to take the radio amateur examination in Brunei Darussalam?
- A. 12 years.
  - B. 14 years.
  - C. 18 years.
  - D. No minimum age limit.

23. The maximum power output for Very High Frequency are?
- A. 400W.
  - B. 10W.
  - C. 150W.
  - D. 50W.
24. Which of the following operation of amateur radio is not permitted?
- A. For marine operation on your boat to operate as a mobile station.
  - B. For communication on your car.
  - C. For your communication in your premise.
  - D. For off-road car expedition.
25. In what Region and Zone is Brunei Darussalam located?
- A. Region 3, Zone 28.
  - B. Region 28, Zone 3.
  - C. Region 38, Zone 2.
  - D. Region 2, Zone 38.
26. Which of the statement below is CORRECT regarding installation of amateur radio equipment in a vehicle?
- A. Radio equipment can be installed in any vehicle without any valid amateur radio license.
  - B. Installation of radio equipment and antenna is not required to meet the specifications and regulations of road and safety code.
  - C. One unit of licensed radio equipment can be transferred anytime from one to another vehicle.
  - D. One unit of licensed radio equipment is only allowed for one vehicle unless stated otherwise in the license.
27. The word "FREQUENCY" should be spelt phonetically, using the phonetic alphabet:
- A. Foxtrot, Romeo, Echo, Queen, United, Echo, November, Charlie, Yankee.
  - B. Foxtrot, Romeo, Echo, Quebec, Umbrella, Echo, November, Charlie, Yankee.
  - C. Foxtrot, Romeo, Echo, Quebec, Uniform, Echo, November, Charlie, Yankee.
  - D. Foxtrot, Romeo, Echo, Queen, Uniform, Echo, November, Charlie, Yankee.
28. What kind of amateur station simultaneously retransmits the signal of other stations on another frequency?
- A. Repeater Station
  - B. Beacon Station
  - C. Telex Station
  - D. Relay Station

29. A neighbour complains that your transmissions were causing interference to his television.  
You should:
- A. Say it's not your fault because you were operating in accordance with your licence.
  - B. Advise him to inform the local authority.
  - C. Advise him to contact RTB.
  - D. Offer to help by initially checking the times of your transmissions.
30. What is the primary requirement for a VHF (Standard) licence holder to upgrade to HF (Advance) licence?
- A. Holding a standard licence for a minimum of six (6) months and to submit a logbook indicating active communication for the past six (6) months.
  - B. To sit and pass an HF licence written examination.
  - C. Holding a standard licence for a minimum of three (3) months and to submit a logbook indicating active communication for the past six (6) months.
  - D. To sit and pass an HF licence practical examination.

## SECTION B

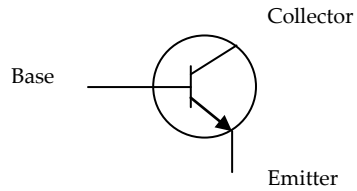
This section contains 30 questions. Answer **all**.

1. The output from the transmitter should be connected to the antenna by:
  - A. Waterproof mains cable.
  - B. Screened audio cable.
  - C. Fuse wire.
  - D. Coaxial cable.
  
2. Which instrument would you use to measure an electric current?
  - A. Ammeter.
  - B. Thermometer.
  - C. Voltmeter.
  - D. Ohmmeter.
  
3. If 'c' is speed of light, 'f' is frequency and  $c=f\lambda$ , what does  $\lambda$  represent?
  - A. Wavelength.
  - B. Time.
  - C. Amplitude.
  - D. Velocity.
  
4. For AC measurement, the value of Voltage-Root-Mean-Square ( $V_{rms}$ ) is:
  - A. 0.5 peak voltage ( $V_{pk}$ ).
  - B. 0.707 peak voltage ( $V_{pk}$ ).
  - C. 1.0 peak voltage ( $V_{pk}$ ).
  - D. 0.333 peak voltage ( $V_{pk}$ ).
  
5. What is the modulation used in "Very High Frequency" and "High Frequency" respectively?
  - A. Single band and multiple band.
  - B. Frequency modulation and amplitude modulation.
  - C. Amplitude modulation and frequency modulation.
  - D. Quadrature amplitude modulation and phase modulation.
  
6. What is the Unit(s) for each of the components (Capacitor, Ammeter, Resistor, Inductor) respectively?
  - A. Coulombs, Meter, Ohm, Henry.
  - B. Coulombs, Ampere, Ohm, Farad.
  - C. Farad, Ampere, Resistance, Henry.
  - D. Farad, Ampere, Ohm, Henry.

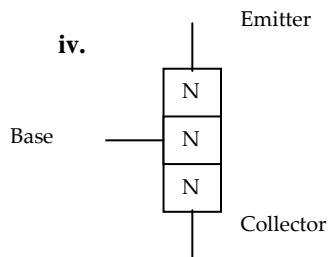
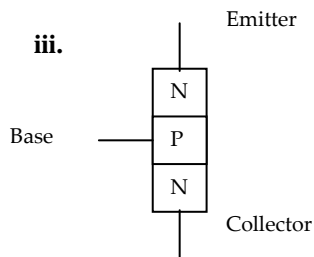
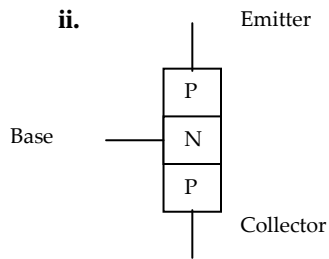
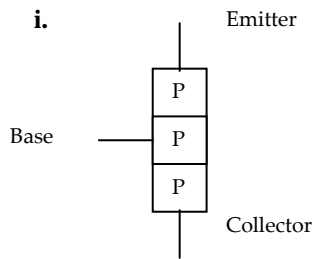
7. Define which antenna comprises of a center-fed driven element for transmitting or receiving radio frequency energy?

- A. Omni-directional Antenna.
- B. Yagi Antenna.
- C. Straight wire antenna.
- D. Half wavelength dipole.

8.



With reference to the transistor symbol above, which one is the correct answer?



- A. i
- B. ii
- C. iii
- D. iv

9. What is the meter band for the frequency 21.000 – 21.450 MHz?

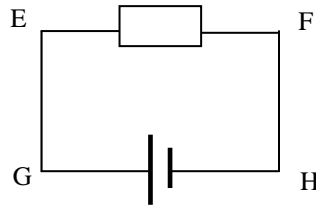
- A. 15 meters.
- B. 15 cm.
- C. 21 meters.
- D. 21 cm.



10. The unit Watt (W) is a measure for:
- A. RF electric field strength.
  - B. RF energy.
  - C. RF power.
  - D. RF voltage.
11. The frequency of a Variable Frequency Oscillator (VFO) is determined by
- A. The supply voltage
  - B. The inductance and capacitance of the tuned circuit
  - C. The type of transistor used
  - D. The particular circuit udes
12. Compared with an ordinary amplitude modulated signal a single-sideband signal:
- A. Occupies a wider bandwidth.
  - B. Is distorted.
  - C. Occupies half the bandwidth.
  - D. Is easier to tune in.
13. A three-element Yagi antenna of rods of unequal length, please arrange the elements in descending order:
- A. Driven element, reflector, director
  - B. Reflector, driven element, director
  - C. Director,diriven element, reflector
  - D. Reflector director,driven element
14. Define the function of Low-pass filter and High-pass filter respectively?
- A. Restrict low frequency and restrict high frequency
  - B. Channeling high frequency and channeling low frequency
  - C. None of the above
  - D. Restrict high frequency and restrict low frequency

15. Which direction is the electron flowing in the diagram below?

- A. From E to F
- B. From H to G
- C. From H -> F -> E -> G
- D. From G -> E -> F -> H



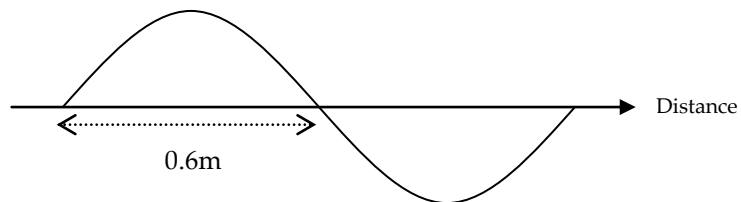
16. What is the velocity of an electro-magnetic wave?

- A.  $200 \times 10^6$  metres/sec.
- B.  $300 \times 10^6$  metres/sec.
- C.  $0.3 \times 10^8$  metres/sec.
- D.  $3 \times 10^{-8}$  metres/sec.

17. Current are defined as:

- A. A measure of electromotive (EMF) force between two points.
- B. Material property that opposes the flow of electrons.
- C. A measure of the flow of electrons through a conductor.
- D. The amount of energy per unit time expended by a system.

18. What is the frequency of the signal shown below at speed  $3 \times 10^8$  m/s, if both half-cycle are equal length?

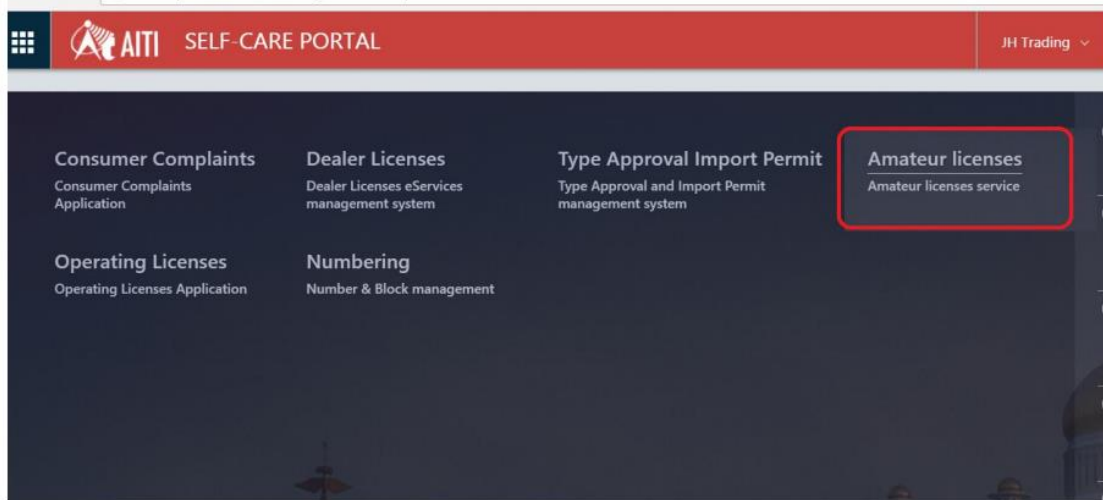


- A. 250 kHz.
- B. 25 GHz.
- C. 25 mHz.
- D. 250 MHz.

19. Groundwave are defined as:

- A. Radio waves that reflect off the ionosphere.
- B. Radio waves traveling along the Earth's surface.
- C. Radio waves that is absorb by the ground.
- D. None of the above.

20. The process of modulation allows:
- A. Information to be removed from a carrier.
  - B. Information to be impressed on to a carrier.
  - C. Voice and Morse code to be combined.
  - D. None of the above.
21. 2 resistors are connected in parallel and are connected across a 240 volt battery. If each resistor is 5000 ohms, the total current is:
- A. 96 ampere.
  - B. 9.6 milliampere.
  - C. 9.6 ampere.
  - D. 96 miliampere.
22. AITI implemented online services on 30<sup>th</sup> May 2017. What is the main function of the highlighted box below?
- A. Applying for radio amateur licence.
  - B. Applying for apparatus licence.
  - C. To complain interference.
  - D. Applying for job vacancy in AITI.

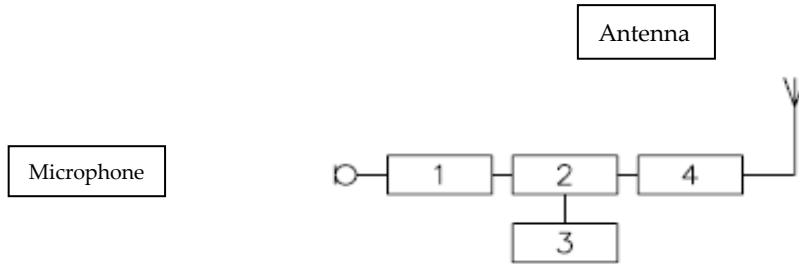


23. The wavelength of a signal in free space with a frequency of 100MHz is:
- A. 3 meter.
  - B. 30 meter.
  - C. 3 millimeter.
  - D. 3 cm.

24. A decrease in power from 40 Watts to 20 Watts is equal to an attenuation of:

- A. 3 dB.
- B. -3 dB.
- C. -20 dB.
- D. 20 dB.

25. What is the correct component order on this transmitter block diagram?



- A. Frequency generation oscillator(1), Audio amplifier(2), Modulator(3), RF amplifier(4).
- B. Audio amplifier(1), RF amplifier(2), Frequency generation oscillator(3), Modulator(4).
- C. Modulator (1), RF amplifier(2), Frequency generation oscillator(3), Audio amplifier(4).
- D. Audio amplifier(1), Modulator(2), Frequency generation oscillator(3), RF amplifier(4).

26. The correct formula for 'Charge' is:

- A.  $Q = V/R$ .
- B.  $Q = CV$ .
- C.  $Q = C/V$ .
- D.  $Q = C^2V$ .

27. Resistance are defined as:

- A. A measure of electromotive (EMF) force between two points.
- B. Material property that opposes the flow of electrons.
- C. A measure of the flow of electrons through a conductor.
- D. The amount of energy per unit time expended by a system.




28. A power amplifier has a gain of -3dB. If you input 60W, the output would be?

- A. 30 W.
- B. 120 W.
- C. 120 kW.
- D. 30 kW.

29. Define the function of a Bandpass filter?

- A. Restrict high frequency.
- B. Restrict low frequency.
- C. Allow only data between two cutoff frequencies to pass.
- D. Allow data except between two cutoff frequencies to pass.

30. What is the symbol for Resistor?

- A. 
- B. 
- C. 
- D. 