SECTION A

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

1. According to the Telecommunication Order 2001, any person who establishes, installs, maintains, provides or operates a radio-communication service or any radio-communication equipment in any place or on board any vessel, aircraft or in any vehicle in Brunei Darussalam without a licence shall be guilty of an offence. Which of the statement below is CORRECT?

    A. Any person guilty of an offence 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 offences shall be liable on conviction to a fine not exceeding $10,000, imprisonment for a term not exceeding 3 years of both.
    C. Any person guilty of an offence shall be liable on conviction to a fine not exceeding $50,000, imprisonment for a term not exceeding 3 years or both.
    D. No fine applies.

2. If you purchase amateur radio equipment from outside the country, what is the right thing to do upon arrival in Brunei Darussalam.

    A. Bring in the said equipment without notifying Royal Brunei Customs and Excise Officials and seek approval from AITI
    B. Declare the equipment to the Royal Brunei Customs and Excise officials, seek approval from AITI and pay import permit for the equipment.
    C. Pay import tax for the equipment without seeking approval from AITI
    D. Bring the equipment directly to AITI officials for approval without paying for import tax.

3. What are the complete details inside the logbook for amateur radio operators everytime they are on air?

    A. Duration of conversation time, station callsign which with you are communicating with, frequency band and emission.
    B. Duration of conversation time, station which with you are communicating with, frequency band, emission and power output, signal report, QSL.
    C. Date, frequency band and emission, power output, conversation time, signal report, statement.
    D. Date, frequency band and emission, power output, station callsign which you are communicating with, start and end of conversation time, signal report, QSL.

4. What is the validity period of an Amateur Radio licence, Amateur Radio 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

5. A radio amateur's transmission is LEAST likely to cause interference to:
    A. other amateurs
    B. other radio users
    C. An electric drill
    D. An electronic security alarm.

6. Which of the statement below is CORRECT regarding installation of Amateur Radio equipment in a vehicle?

   A. One unit of licensed radio equipment is only allowed for one premise unless stated otherwise in the license.
   B. Radio equipment can be installed in any premise without any valid amateur radio license.
   C. Installation of radio equipment and antenna is not required to meet the specifications and regulations of building/residential code.
   D. One unit of licensed radio equipment can be transferred anytime from one premise to another.

7. During your Amateur Radio conversation, what should you do when you hear 'BREAK'?

   A. Stop your conversation, release your frequency immediately and be on standby to assist if necessary.
   B. Stop your conversation and turn off your equipment.
   C. Keep on communicating and disregard the message.
   D. Report this to AITI immediately for assistance.

8. Having an amateur radio conversation. Which set of conversations below should they avoid:

   A. Religion, Business, Politics, Racial and Ethnic Slurs.
   B. Hobbies, Education, and Entertainment.
   C. Sport, Personal details and Socializing.
   D. Weather, Location and Q-Codes.

9. A station 'Callsign' is sent for the purpose of identification at the start of transmission and end of transmission. It should…

   A. Be mentioned once after the first 60 minutes
   B. Be mentioned once after the first 15 minutes
   C. Be repeated every 15 minutes
   D. Be repeated every 60 minutes

10. What is required by AITI during random amateur radio inspections?

   A. Station Log Book and a valid amateur radio licence
   B. Station log book and a certificate from Radio Organisation
   C. Station log book and a valid driving licence
   D. A certificate from any Radio Organisation and a valid driving licence

11. What is the 'Q' code for "Are you ready?" and "What is your location?"

   A. QRV and QTH
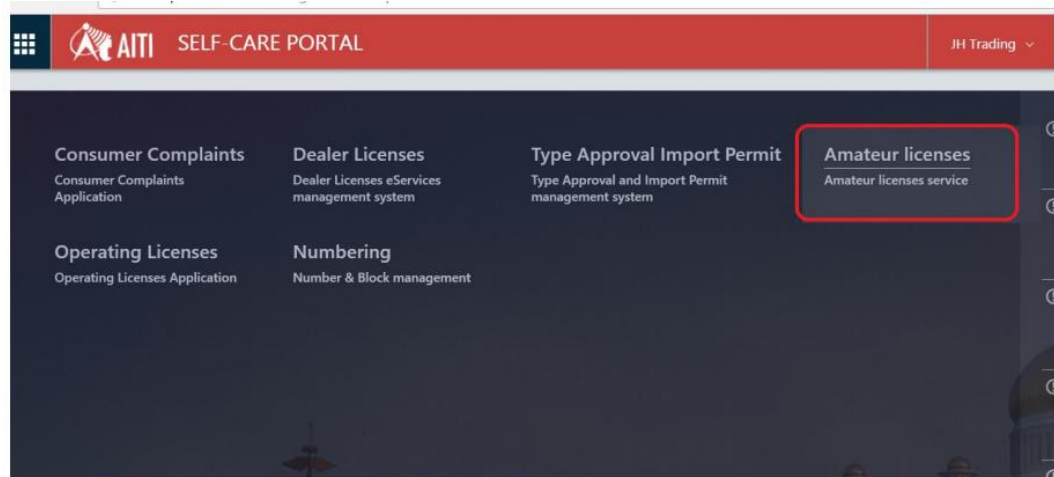   B. QRV and QTA
   C. QRB and QTH
   D. QSA and QTB

12. 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

13. What do you understand by 'Squelch'?

   A. A type of antenna
   B. A function to reduce/increase the audio sensitivity when no desired signal is present
   C. A type of conversation you have with 'Gaelic' native speakers
   D. An equipment used to increase your transmitting signal

14. To avoid a direction high gain antenna from directing its excess RF power to the people in nearby buildings, what must be done?

   A. Place the antenna higher than surrounding buildings.
   B. All equipment must be properly grounded.
   C. Place the antenna lower or equal height to the surrounding buildings.
   D. None of the above

15. For special event such as Jamboree On The Air, AITI allocates callsigns with the following prefix:

   A. V84S
   B. V85S
   C. V88S
   D. V89S

16. 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 AITI declare a state of emergency.
   C. The exchange of such information must be approved by a local emergency preparedness official.
   D. None of the above.

17. Why does all amateur radio equipment in a station have to be maintained?

   A. To ensure it does not interfere with other radio-communication services
   B. To support IEE
   C. To ensure the maximum power does not exceed beyond 20%
   D. With complete discretion by AITI officials

18. Where does a Brunei Darussalam Amateur Radio licence allow you to operate?

    A. From anywhere in the world
    B. From wherever the Amateur Radio Service is regulated as stated in the licence issued
    C. From a country that shares a third party agreement with Brunei Darussalam
    D. Only from the mailing address printed on your license

19. What are the requirements for applying an Amateur Radio licence upgrade (ie. V89 – V85)?

    A. The licence holder must fill up the Amateur Radio Callsign Application form and submit a minimum six (6) month logbook.
    B. Licence holder must hold a valid Amateur Radio licence for at least three (3) years
    C. To purchase an amateur HF radio equipment before applying.
    D. No further process required upon passing your amateur radio examination.

20. What is the frequency band used by an amateur radio for a "Very High Frequency" in Brunei Darussalam?

    A. 144.000 kHz – 148.000 kHz
    B. 137.000 MHz – 156.000 MHz
    C. 144.000 MHz – 148.000 MHz
    D. 137.000 kHz – 148.000 kHz

21. When using a repeater to communicate, which of the following do you need to know about the repeater?

    A. Its input frequency and offset
    B. The owner of the repeater
    C. Its power level and location
    D. Whether or not it has amo patch

22. An activity wherein participants use radio direction finding techniques to locate one or more radio transmitters hidden within a designated area, is called?

    A. Fox Dancing
    B. Fox Hunting
    C. DXing
    D. Echolink

23. 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 unlicence band
    C. Operating an approved equipment with an expired operating licence
    D. Operating another operators equipment where both are licenced

24. VHF and UHF signals can be obstructed by:

    A. Transmission during night time
    B. Strong north winds
    C. Transmission over water
    D. Large obstacles

25. The purpose of an antenna is to:
    A. Provide a convenient place for birds to land.
    B. Allow balanced transmission lines.
    C. Let people know you are a radio amateur.
    D. Convert electrical signals into radio waves.

26. You installed a 144MHz transceiver for marine operation on your boat to operate as an Amateur radio mobile station. Under which of the following conditions is operating permitted?

    A. Not permitted at all
    B. Anywhere, provided the boat remains in Brunei Darussalam waters
    C. On inland waterways and river but not in docks, estuaries or harbours
    D. Only with special permission from the AITI

27. Under what circumstances can an Amateur Operator transmit outside amateur bands?

    A. To assist with a distress situation
    B. When assisting with a community run event
    C. No circumstances
    D. To make brief test

28. Which of the following uses the International Phonetic Alphabet?

    A. Alpha, Norway, Delta.
    B. Denmark, Oscar, Gordon.
    C. Alpha, Charlie, Tango.
    D. Bravo, Uniform, Gordon.

29. How many KHz are in MHz:

    A. 10.
    B. 1000.
    C. 1000 000.
    D. 100.

30. Interference from your transmissions can be reduced by:

    A. Operating when the ionosphere is high so your signals will not effected
    B. Reducing the output power from your transmitter.
    C. Following the instructions supplied by the manufacturer of your transmitter.
    D. Fitting a mains filter on the 240V power lead to your transmitter.

SECTION B

1. AITI implemented an online service (online.aiti.gov.bn) on 30th May 2017. What is the main function of the highlighted box?

    A. Applying for radio amateur licence.
    B. Applying for apparatus licence.
    C. To complain about interference.
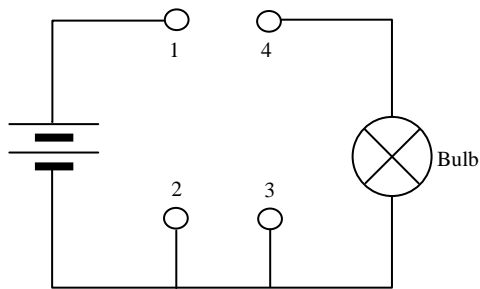   D. Applying for job vacancy in AITI.

2. What is the most serious risk when working on equipment using high voltages?

    A. Such equipment are more likely to develop a fault.
    B. Spare parts are harder to obtain.
    C. High voltage equipment are more complicated and harder to repair.
    D. There is a risk of receiving a fatal electric shock.

3. Which instrument would you use to measure an electric current?

    A. Ammeter.
    B. Thermometer.
    C. Voltmeter.
    D. Ohmmeter.

4. Which of the following of the components is used to make RF filters?

    A. Diode and Resistor.
    B. Zener Diode and Zeti Diode.
    C. Capacitor and LEDs.
    D. Inductors and Capacitor.

5. If 'c' is speed of light, 'f' is frequency and c=fλ, what does λ represent?

  A. Wavelength.
  B. Time.
  C. Amplitude.
  D. Velocity.

6. To allow the bulb in the diagram to light correctly, a wire should be connected between points

  A. 1 and 4
  B. 1 and 2
  C. 1 and 3
  D. 3 and 4
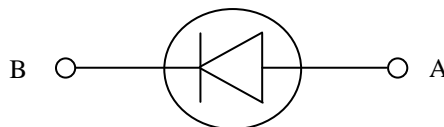
7. An electric current passing through a wire will produce around the conductor.

  A. An electric field.
  B. A superconductor.
  C. A semiconductor.
  D. A magnetic field.

8. Which components can amplify a small signal using low voltages?
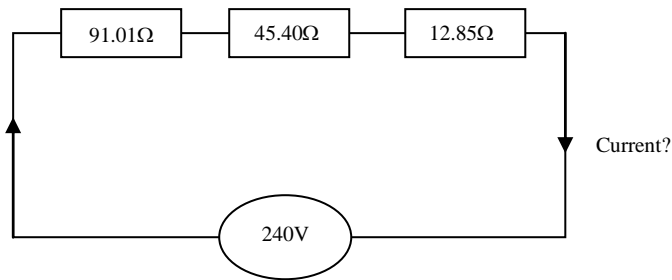
  A. PNP transistor.
  B. Transformer.
  C. Mega Cell Battery.
  D. Resistor.

9. In the diagram below, indicate the current flow in the semi-conductor diode.

  A. From A to B
  B. From B to A
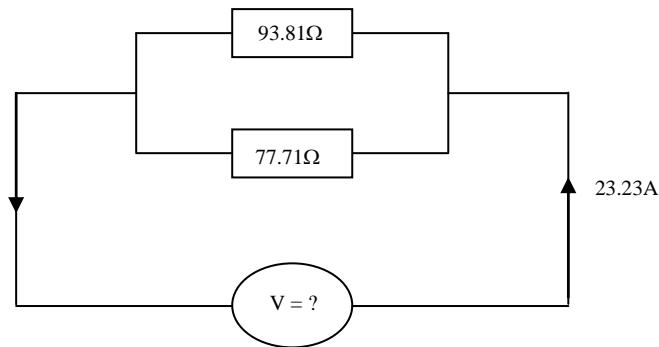 C. From A to B and B to A
  D. None of the above

10. What is the Current and the total Resistance of three resistors connected in series as shown below?

A. 149.26 A and 1.61 Ohms.
B. 1.61 A and 149.26 Ohms.
C. 622 mA and 389.26 Ohms.
D. 622 A and 389.26 Ohms.

11. Which one of the following is the correct application of the frequency 7040 kHz in amateur radio?

A. Long distance communication ie. Hawaii.
B. Short distance communication ie. Borneo Island.
C. Repeaters.
D. None of the above.

12. 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.

13. The relationship of 'Charge' is

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

14. 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.

15. Which of the following principles is used when working with almost any electronic circuit?

    A. Coulomb's Law.
    B. Cole's Law.
    C. Ohm's Law.
    D. Tesla's Law.

16. Which of the following is true about Capacitor?

    A. It is an electrical device that resists the flow of current.
    B. A device that only allows a current to flow in one direction in a circuit.
    C. Stores energy and produces a mechanical force between the conductors.
    D. Used for filtering and smoothing of signals and are the major components in transformers.

17. What are the unit prefixes for Giga, Kilo, Mega respectively?

    A. 10^9, 10^6, 10^3
    B. 10^9, 10^3, 10^6
    C. 10^6, 10^3, 10^9
    D. 10^{-9}, 10^3, 10^6

18. 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.

19. A power amplifier has a gain of 3dB. If you input 44W, the output would be?

    A. 9.67 W
    B. 88 W
    C. 0.103 W
    D. 58 W

20. What is the function of an antenna tuner?

    A. To improve power efficiency between transceiver and antenna by matching the impedance.
    B. To tune the frequency.
    C. To maintain power transmission at a safe level.
    D. To provide excellent grounding to the equipment during lighting.

21. 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.

22. What is the Voltage (V) and the total Resistance of 93.81 Ohms and 77.71 Ohms resistors connected in parallel as shown below, if a 23.23 A current flow through the circuit?

A. 240 V and 7289.98 Ohms
B. 3984.41 V and 171.52 Ohms
C. 169346.24 V and 7289.98 Ohms
D. 240 V and 171.52 Ohms

23. 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.

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

A. 200×10^6 metres/sec
B. 3×10^8 metres/sec
C. 0.3×10^8 metres/sec
D. 3×10^{-8} metres/sec

25. What is used to convert sounds from our voice into radio signals?

A. Receiver
B. Transmitter
C. Speaker
D. Antenna

26. A vertical half wave dipole will radiate:

A. Equally to all points on the horizon.
B. A maximum signal in a vertical direction.
C. A minimum signal at right-angles to the antenna.
D. A maximum signal off the ends of the antenna.

27. Excessive amplitude modulation may cause:

    A. The transmit frequency to drift.
    B. Interference to adjacent channels.
    C. The received voice to become higher in pitch.
    D. The standing wave ratio to increase above its limits.

28. If 'T' is the Time and 'f' is the frequency, which listed below is the correct formula?

    A. $T = f$
    B. $T = 1/f$
    C. $1 = f^2 T$
    D. $1 = f/T$

29. A standing wave meter (SWR) is used to:

    A. Check the height of the tower.
    B. Check the efficiency of a transmitter.
    C. Check the resonant frequency of an aerial.
    D. Match the transmitter to the aerial system.

30. A transformer is used to balance a transmission line of 4.0 Ohm with a 2020 Ohm antenna. What is the ratio required for the transformer to do this?

    A. 1 : 8080
    B. 1 : 505
    C. 1 : 1010
    D. 1 : 2020