

## SECTION A

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

1. 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
  
2. Section 68 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 statement of conviction is CORRECT when a person commits 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 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.
  - C. 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.
  - D. No fine is liable at all.
  
3. With regards to AITI rules and regulation, amateur radio equipment is only permitted to be operated
  - A. Within the frequency range stated in the license
  - B. Within the permitted range of frequency in the radio equipment
  - C. One time only
  - D. Using a radio transceiver
  
4. 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
  
5. The content recorded on your station log book shall be preserved for a period of:
  - A. at least 6 months
  - B. at least 1 year
  - C. at least 2 years
  - D. forever

6. AITI has the right to
  - A. allocate any frequency band to fixed and mobile services only.
  - B. allocate any frequency band to any services including Amateur Radio, Broadcasting, Fixed and Mobile services, etc.
  - C. allow any other authority to allocate frequency to any services
  - D. None of the above.
  
7. How much is the fee for the Amateur radio licence?
  - A. No fee is required
  - B. B\$25 for a year
  - C. B\$25 for a lifetime
  - D. B\$5 for a year
  
8. 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
  
9. How many types of Amateur Radio licence issued by AITI?
  - A. One
  - B. Two
  - C. Three
  - D. Four
  
10. If an amateur radio licensee wants to continue his/her licence, he/she must
  - A. renew his/her license prior to license expiry date.
  - B. renew his/her license after licence has expired.
  - C. reconnect his/her amateur radio equipment.
  - D. inform his/her amateur radio association
  
11. 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. What is this requirement for?
  - A. primary requirement for a VHF (Standard) licence holder to upgrade to HF (Advance) licence
  - B. secondary requirement for a VHF (Standard) licence
  - C. requirement for station licence approval
  - D. primary requirement for equipment approval and permit to enter the country
  
12. If you are asking if there is an interference, which "Q" code signal you would send?
  - A. QTH
  - B. QRT
  - C. QRZ
  - D. QRM

13. 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 operator's equipment where both are licensed
14. Which of the following are required by AITI during an inspection?
- A. Station Log Book, Station Licence and equipment.
  - B. Station Log Book, Driving Licence and equipment
  - C. Station Log Book, Station Licence and FM Radio
  - D. Station Log Book, Import Permit, and equipment
15. The word "FREQUENCY" should be spelt phonetically, using the phonetic alphabet
- A. Foxtrot, Romeo, Echo, Queen, Unicorn, Echo, November, Charlie, Yanky
  - B. Foxtrot, Romeo, Echo, Quebec, Uniform, Echo, November, Charlie, Yanky
  - C. Foxtrot, Romeo, Echo, Quebec, Uniform, Echo, November, Charlie, Yankee
  - D. Foxtrot, Romeo, Echo, Queen, Uniform, Echo, November, Charlie, Yankee
16. What is the frequency band used by an amateur radio for a "High Frequency" in Brunei Darussalam?
- A. 450.000 MHz – 460.000 MHz
  - B. 450.000 kHz – 460.000 kHz
  - C. 7.000 MHz – 7.100 MHz
  - D. 7.000 kHz – 7.100 kHz
17. What is the correct callsign prefix for Standard and Advanced Class Amateur Radio Licence respectively?
- A. V85 and V89
  - B. V89 and V85
  - C. V8N and V8M
  - D. V8B and V8A
18. Two persons are having an amateur radio conversation. Which set of conversations below should they avoid
- A. Religion, Business, Politics, Racial and Ethnic
  - B. Hobbies, Education, and Entertainment.
  - C. Sport, Personal details and Socializing.
  - D. Weather, Location and Q-Codes.
19. A station 'Callsign' is sent for the purpose of identification at the start of transmission and end of transmission. It should be repeated for
- A. Within the first 30 minutes
  - B. Once after the first 15 minutes
  - C. Every 15 minutes
  - D. Once within 60 minutes

20. What are the requirements for a non-local to obtain a temporary amateur radio license in Brunei Darussalam?
- A. A local guarantor, applicant must produce a valid foreign amateur radio licence and a copy of applicant valid passport.
  - B. Applicant has to sit for AITI amateur radio exam.
  - C. Foreigners are not allowed to hold a local amateur radio licence.
  - D. None of the above
21. What should be done when installing an antenna on the surface of the earth?
- A. The antenna should not be installed higher than you
  - B. The antenna should be installed not to expose people to radio frequency radiation from the antenna's transmission
  - C. The antenna can be installed on a wet surface
  - D. The antenna need to be painted to avoid human being and animals from colliding into the antenna
22. What details are required to be included in the log book for amateur radio operators everytime they are on air?
- A. Date, station which with you are communicating with, frequency band and emission.
  - B. Date, vehicle number which with you are communicating with, frequency band, emission and power output.
  - C. Date, frequency band and emission, station callsign of the person you are communicating with, start and end of conversation time, signal report, QSL
  - D. Frequency band and emission, power output, conversation time, signal report, statement.
23. Is amateur radio equipment allowed to be modified?
- A. With permission from the Royal Brunei Police Force and Royal Brunei Custom and Excise.
  - B. If the equipment is modified by a certified dealer.
  - C. 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.
24. If you purchase amateur radio equipment from outside the country, without an import permit, what is the right thing to do upon arrival at the custom's control post?
- A. Bring in the said equipment without notifying Royal Brunei Custom and Excise Officials and seek approval from AITI
  - B. Declare the equipment to the Royal Brunei Custom and Excise officials, seek approval from AITI and pay import duty for the equipment
  - C. Pay import tax for the equipment without seeking approval from AITI
  - D. Bring the equipment directly to AITI officials for approvals without having to pay for import tax.

25. What type of operation which transmit and receive on a different frequency?
- A. Simplex Operation
  - B. Duplex Operation
  - C. Multiplex Operation
  - D. All of the above
26. Amateur radio services, as a secondary service, are permitted to use the frequency band if
- A. amateur radio user feels experienced enough
  - B. it only interferes with other primary services
  - C. it does not cause any interference to primary service
  - D. the primary service operates at a lower power and used at the same time
27. In what circumstances can an amateur radio broadcast information to the public?
- A. When an amateur radio operator is paid
  - B. When broadcasting is less than one hour
  - C. When broadcasting is more than 15 minutes
  - D. It is entirely prohibited
28. What type of interference may come from a multi-band antenna connected to a poorly tuned transmitter?
- A. Harmonic radiation
  - B. Auroral distortion
  - C. Parasitic excitation
  - D. Intermodulation noise
29. Amateur radio repeater frequencies in Brunei are assigned by
- A. Local amateur radio club
  - B. Authority for Info-communications Technology Industry of Brunei Darussalam
  - C. Ministry of Communication
  - D. International Amateur Radio Association
30. 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 a patch

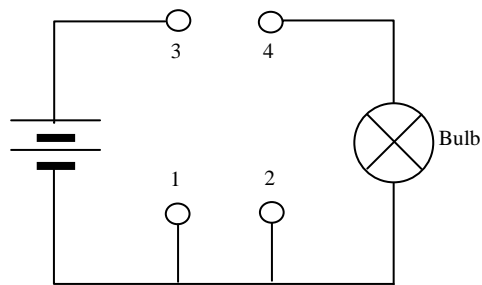
## SECTION B

This section contains 30 questions. Answer *all*.

31. If 'c' is speed of light and  $c=f\lambda$ , what does ' $\lambda$ ' represent?

- A. wavelength
- B. time
- C. frequency
- D. velocity

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



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

33.  $V = IR$  is derived from

- A. Volt's Law
- B. Ohm's Law
- C. Current and resistance's Law
- D. Watt's Law

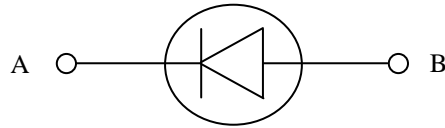
34. What is the symbol for Light Emitting Diode (LED)?

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

35. A band pass filter will

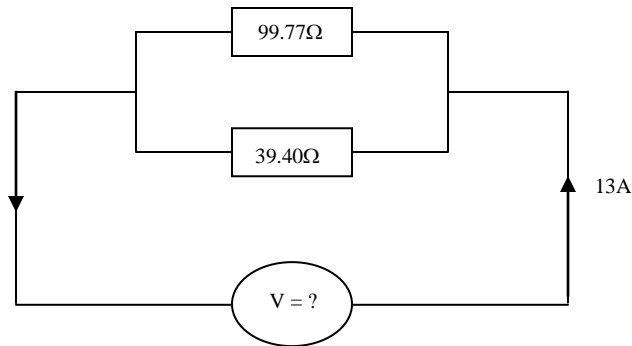
- A. suppress sub-harmonics
- B. passes frequency within certain range and reject attenuate frequencies
- C. reduce harmonics
- D. always eliminate interference

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



- A. From B to A
  - B. From A to B
  - C. From A to B and B to A
  - D. None of the above
37. The time period of the frequency 10 kHz is 0.1 ms, which formula was use?
- A.  $c=f\lambda$ ,
  - B.  $P= IV$
  - C.  $1/t$
  - D.  $t/1$
38. The unit for power is
- A. Farad
  - B. Ohm
  - C. Watt
  - D. Ampere
39. A transformer is used to balance a transmission line of  $2.0 \Omega$  with a ratio of 1 : 1000. What is the resistance value used by the transformer?
- A. 2000 m $\Omega$
  - B. 2 k $\Omega$
  - C. 500  $\Omega$
  - D. 500 m $\Omega$
40. Which is the correct units for the following components:
- Capacitor
  - Resistor
  - Inductor
- A. Coulombs, Meter, Ohm
  - B. Coulombs, Ampere, Farad
  - C. Farad, Ampere, Henry
  - D. Farad, Ohm, Henry
41. Which of the following are the correct modulations used for "Very High Frequency" and "High Frequency" respectively?
- A. Single band and multiple band
  - B. Amplitude modulation and frequency modulation
  - C. Frequency modulation and amplitude modulation
  - D. Quadrature amplitude modulation and phase modulation

42. What is the Voltage (V) and the total Resistance of  $99.77\ \Omega$  and  $39.40\ \Omega$  resistors connected in parallel as shown below, if a 13 A current flows through the circuit?



- A. 180.921 V and  $13.917\ \Omega$   
B. 367.19 V and  $28.25\ \Omega$   
C. 36.719 V and  $282.5\ \Omega$   
D. 1809.21 V and  $139.17\ \Omega$
43. Which of the following equipment that is used to convert sounds from our voice into radio signals
- A. Transmitter  
B. Receiver  
C. Speaker  
D. Antenna
44.  $3 \times 10^8$  metres/sec is :
- A. Speed of of sounds  
B. Velocity of an electro magnetic wave  
C. Measurement of wavelength  
D. Speed of radio wave in water
45. Which of the following is true about Diode?
- 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
46. The wavelength of a signal in free space with a frequency of 146.08MHz is 2.05 meter, which fomula do you use?
- A.  $f/\lambda = c$   
B.  $\Omega/\lambda = c$   
C.  $c/\lambda = f$   
D.  $Q/\lambda = c$



47. A standing wave meter (SWR) is used to check the
- A. Height of the tower
  - B. Efficiency of a transmitter
  - C. Resonant frequency of an aerial
  - D. Matching of the transmitter to the aerial system
48. The correct formula for 'Charge' is:
- A.  $Q = V/R$
  - B.  $Q = CV$
  - C.  $Q = C/V$
  - D.  $Q = C^2V$
49. 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
50. Which of the following is the correct value of Voltage-Root-Mean-Square ( $V_{rms}$ ) for measuring AC?
- 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 ( $V_{pk}$ )
51. What is the meter band for the frequency 3.50-3.90MHz?
- A. 80 meters
  - B. 80 cm
  - C. 30 meters
  - D. 30 cm
52. Which of the following is the correct arrangement for the three-element Yagi antenna of rods of unequal length in descending order?
- A. Reflector, driven element, director
  - B. Driven element, reflector, director
  - C. Director, driven element, reflector
  - D. Reflector director, driven element
53. Which of the following is the correct 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 lightning

54. What is the velocity of an electro-magnetic wave?
- A.  $30 \times 10^6$  metres/sec
  - B.  $300 \times 10^6$  metres/sec
  - C.  $0.3 \times 10^8$  metres/sec
  - D.  $3 \times 10^{-8}$  metres/sec
55. Resistance is 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
56. What is the advantage of a quarter-wave vertical ground-plane antenna for DX working on 21MHz?
- A. Small size
  - B. All-round radiation
  - C. Good matching to the feeder
  - D. Low radiation angle
57. Which of following is the correct component that can amplify a small signal using low voltages?
- A. PNP transistor
  - B. Transformer
  - C. Mega Cell Battery
  - D. Resistor
58. Which of the following is the correct definition of Groundwave?
- A. Groundwave are radio waves that reflect off the ionosphere
  - B. Groundwave are radio waves traveling along the Earth's surface
  - C. Groundwave are radio waves that is absorb by the ground
  - D. None of the above
59. What does Modulation process allow?
- A. Information to be compressed on to a carrier
  - B. Information to be removed from a carrier
  - C. Voice and Morse code to be combined
  - D. None of the above
60. What is the difference between an ordinary amplitude modulated signal and a single-sideband signal?
- A. single-sideband signal occupies a wider bandwidth
  - B. single-sideband signal is distorted
  - C. single-sideband signal occupies half the bandwidth
  - D. single-sideband signal is easier to tune in