

**AMATEUR RADIO EXAMINATION
- QUESTION PAPER -**

INDEX NO.	AMR-9-2012-								
IC NO.			-						

IC COLOUR

DAY : SUNDAY
DATE : 30th SEPTEMBER 2012M / 14 ZULKAEDAH 1433H
TIME : 0930 – 1130 (2 HOURS)
VENUE : B13, AITI BUILDING, KG. ANGGEREK DESA

**TO ALL CANDIDATES
PLEASE READ CAREFULLY THE INSTRUCTIONS BELOW
BEFORE YOU START YOUR EXAMINATION PAPER**

1. This examination paper contains **60 multiple choice questions** and is separated into 2 sections. Section A contains **30 multiple choice questions**, and Section B also contains **30 multiple choice questions**, please answer all.
2. To answer, please **circle** the letters A, B, C or D that have been provided in the Answer Sheet.
3. Participants need to pass in both sections (Section A and B). Failure in either section will be counted as an automatic Fail.
4. Allowed writing material is **BLUE** or **BLACK** pens only. Pencils and other writing materials are prohibited.
5. **Strike** answers that are to be changed. The use of erasers, blanco or the likes is prohibited.
6. Mathematical work is allowed only on the question paper. Doing mathematical work on other paper is **prohibited**.
7. Examination Paper and Answer Sheet are to be returned to the invigilator, even if no questions are answered.
8. Participants are **prohibited** to speak, borrow writing materials or calculators or the likes during the whole duration of the exam.
9. Identification Card or passport is to be placed on the table for the whole duration of the examination. Participants are not allowed to leave their seats without permission from invigilators.
10. If it is found that participants are not following instructions, orders or warnings during the examination, their names will be recorded for further action or immediate disqualification.

SECTION A

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

1. 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 should a person do 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. 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

3. In what Region and Zone is Brunei Darussalam located?
 - A. Region 28, Zone 3
 - B. Region 38, Zone 2
 - C. Region 3, Zone 38
 - D. Region 3, Zone 28

4. All operations regarding station usage need to be recorded in a log book. What details are required to be included in the log book for amateur radio operators everytime they are on air?
 - A. Date, frequency band and emission, station callsign which with you are communicating, start and end of conversation time, signal report, QSL
 - B. Date, frequency band and emission, power output, conversation time, signal report, statement.
 - C. Date, station callsign which with you are communicating with, frequency band and emission.
 - D. Date, station which with you are communicating with, frequency band, emission and power output

5. Is an approved 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 approved 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.

6. The amateur radio license classes in Brunei are:
 - A. Novice, Advances
 - B. Standard, Advanced
 - C. Class 1, Class 3
 - D. Novice, Technician

7. The maximum power output for Very High Frequency and High Frequency
 - A. 10W
 - B. 400W
 - C. 150W
 - D. 50W

8. "QTH?" 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?

9. Station, Log book and license are required for random inspection done by
 - A. A certified Radio Organization
 - B. Royal Brunei Police Force
 - C. Authority for Info-communications Technology Industry (AITI)
 - D. Registrar of Companies

10. When should you use simplex operation instead of a repeater?
 - A. When the most reliable communications are needed
 - B. When an emergency telephone call is needed
 - C. When a contact is possible without using a repeater
 - D. When you are traveling and need some local information

11. If you purchase amateur radio equipment from outside the country, 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 official
 - B. Pay import tax for the equipment
 - C. Declare the equipment to the Royal Brunei Custom and Excise officials
 - D. Bring the equipment directly to AITI officials

12. 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

13. 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. 144.000 MHz – 148.000 MHz
 - C. 137.000 MHz – 156.000 MHz
 - D. 137.000 kHz – 148.000 kHz
14. If you are in contact with another station and you hear an emergency call for help on your frequency, what should you do?
- A. Stop your QSO immediately and take the emergency call
 - B. Tell the calling station that the frequency is in use
 - C. Call your local Fire and Rescue Department and inform them of the emergency
 - D. Direct the calling station to the nearest emergency net frequency
15. What type of operation which transmit and receive on a different frequency?
- A. Simplex Operation
 - B. Multiplex Operation
 - C. Duplex Operation
 - D. All of the above
16. 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.
17. In what circumstances can an amateur radio broadcast information to the public?
- A. When an amateur radio operator is paid
 - B. It is entirely prohibited
 - C. When broadcasting is less than one hour
 - D. When broadcasting is more than 15 minutes
18. What type of interference may come from a multi-band antenna connected to a poorly tuned transmitter?
- A. Auroral distortion
 - B. Harmonic radiation
 - C. Parasitic excitation
 - D. Intermodulation noise

19. 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
20. 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
21. In International Morse code, what is **AITI**?
- A. .- .- .- .-
 - B. .- .. - ..
 - C. ... --- ...
 - D. .. - .. .-
22. For 20 meter band, which one of the following frequency band is correct?
- A. 21.550 – 21.650 MHz
 - B. 21.000 – 21.450 MHz
 - C. 14.450 – 14.600 MHz
 - D. 14.000 – 14.350 MHz
23. 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
24. What is the validity period of an Import Permit for an Amateur Radio equipment from the date of issue?
- A. 2 weeks
 - B. 2 months
 - C. 1 week
 - D. 1 year
25. In Amateur Radio communications, what does '73' means?
- A. Hugs and Kisses
 - B. Attention to all radio amateur
 - C. Best regards
 - D. Hello

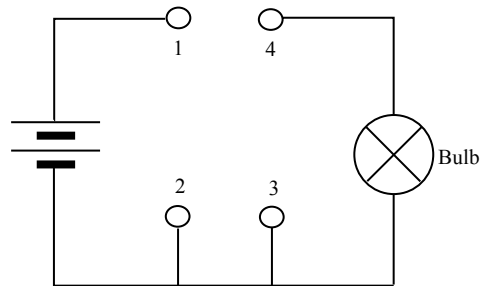
26. What material is best for antenna conductor?
- A. Copper
 - B. Plastic
 - C. Glass
 - D. Aluminum
27. How many types of amateur radio licence does AITI issue?
- A. Temporary, Class and Exclusive
 - B. Trial, Standard and Advance
 - C. Station, Standard and Premium
 - D. Temporary, Standard and Advance
28. Erman 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.
29. For signal strength scale, what is the scale for 'fairly good signal' and 'extremely strong signal'?
- A. 1 and 9
 - B. 5 and 9
 - C. 9 and 5
 - D. 1 and 5
30. 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

SECTION B

31. What is the voltage, for a circuit with a 4 Ohms resistor and current of 3 A?

- A. 7 V
- B. 1.33 V
- C. 0.75 V
- D. 12 V

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

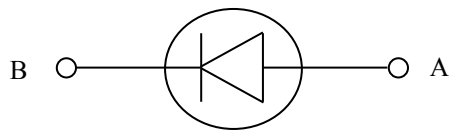


- A. 1 and 4
- B. 1 and 2
- C. 1 and 3
- D. 3 and 4

33. 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

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

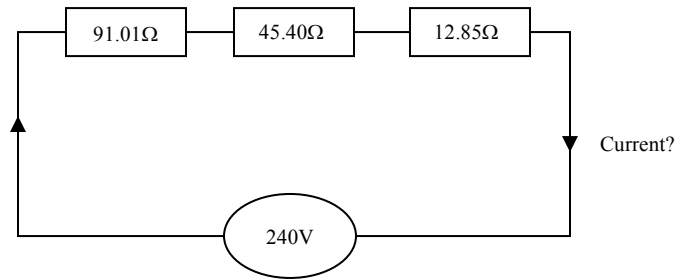


- A. From A to B
- B. From B to A
- C. From A to B and B to A
- D. None of the above

35. 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})

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



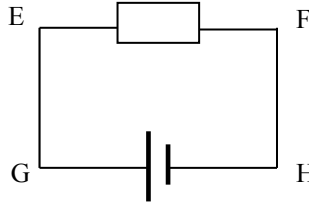
- A. 149.26 A and 1.61 Ohms
 - B. 1.61 A and 149.26 Ohms
 - C. 622 mA and 389.26 Ohms
 - D. 622 A and 389.26 Ohms
37. What is the modulation used in “Very High Frequency” and “High Frequency” respectively?
- A. Single band and multiple band
 - B. Frequency modulation and amplitude modulation
 - C. Amplitude modulation and frequency modulation
 - D. Quadrature amplitude modulation and phase modulation
38. 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
39. 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
40. The relationship of ‘Charge’ is
- A. $Q = V/R$
 - B. $Q = C/V$
 - C. $Q = CV$
 - D. $Q = C^2V$

41. 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
42. 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
43. What is 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
44. 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
45. The unit Watt (W) is a measure for:
- A. RF electric field strength
 - B. RF energy
 - C. RF power
 - D. RF voltage
46. 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
47. What is the advantage of using a trap dipole antenna over a usual dipole?
- A. It has more gain
 - B. It operates on several bands
 - C. It is a broadband antenna
 - D. It is omni-directional

48. A three-element Yagi antenna of rods of unequal length, please arrange the elements in descending order
- Driven element, reflector, director
 - Reflector, driven element, director
 - Director, driven element, reflector
 - Reflector director, driven element
49. A transformer is used to balance a transmission line of 4.0 Ohm with a 800 Ohm antenna. What is the ratio required for the transformer to do this?
- 1 : 200
 - 1 : 804
 - 1 : 3200
 - 1 : 0.005

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

- From E to F
- From H to G
- From H → F → E → G
- From G → E → F → H



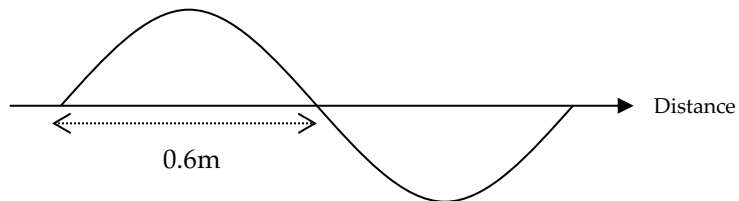
51. Define the function of Low-pass filter and High-pass filter respectively?

- Restrict low frequency and restrict high frequency
- Channeling high frequency and channeling low frequency
- None of the above
- Restrict high frequency and restrict low frequency

52. What is the time period of an alternating current if the frequency is 10 MHz?

- 0.1 μ s
- 0.1 ms
- 100 ms
- 10 μ s

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







- 250 kHz
- 25 GHz
- 25 mHz
- 250 MHz

54. Current is define 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

55. What is the symbol for resistor

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

56. What does Single-sideband modulation (SSB) means?

- A. It is a refinement of the technique of frequency modulation
- B. It is a refinement of the technique of amplitude modulation
- C. It is a form of digital modulation
- D. It is a spread spectrum modulation technique

57. Groundwave is define 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

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

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

59. A 50 hertz current in a wire means that

- A. a cycle is completed 50 times in each second
- B. a potential difference of 50 volts exists across the wire
- C. the current flowing in the wire is 50 amperes
- D. the power dissipated in the wire is 50 watts

60. 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