

**AMATEUR RADIO EXAMINATION
- QUESTION PAPER -**

INDEX NO.	AMR-2-2011-							
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DAY : SUNDAY
DATE : 13th FEBRUARY 2011M / 10 RABIULAWAL 1432H
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. 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. 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 granted 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 is liable at all.

3. 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

4. What are the two (2) types of amateur radio licence issued by AITI?
 - A. Written Class and Practical Class
 - B. Advanced Class and Standard Class
 - C. Advanced Class and General Class
 - D. Standard Class and Trial Class

5. The regulatory body in Brunei Darussalam authorised to oversee Amateur Radio is
 - A. Brunei Darussalam Amateur Radio Council
 - B. Authority for Info-communications Technology Industry of Brunei Darussalam
 - C. International Amateur Radio Union
 - D. Broadcasting Unit, Ministry of Communications

6. An amateur radio licensee shall purchase their equipment
 - A. from any company that sells radio equipments
 - B. from IT Unit, AITI
 - C. from a company with valid AITI dealer licence
 - D. from an amateur radio licensee

7. 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.

8. If an amateur radio licensee wants to terminate his/her licence, he or she must
 - A. inform AITI in written format and states reasons for termination while also informing the status of equipment, which must be signed by licensee before licence is expired.
 - B. inform AITI in written format and states reasons for termination while also informing the status of equipment, which must be signed by licensee after licence has expired.
 - C. disconnect his/her amateur radio equipment.
 - D. inform his/her amateur radio association.

9. If a licensee loses his/her amateur radio licence, he or she should
 - A. report to Royal Brunei Police Force
 - B. declare to AITI in written format
 - C. request to reprint his/her amateur radio licence
 - D. All of the above

10. You are having a conversation with V89ZT by amateur radio, and friends enter his room. You may also talk to them
 - A. if they are a family member.
 - B. if V89ZT gives permission.
 - C. if they also have a valid amateurs radio license.
 - D. but only on the calling channel.

11. If an amateur radio licensee wants to change his/her callsign, it can be done with notification and approval from
 - A. Brunei Darussalam Amateur Radio Council
 - B. Authority for Info-communications Technology Industry of Brunei Darussalam
 - C. International Amateur Radio Union
 - D. Broadcasting Unit, Ministry of Communications

12. What are the fee charges for Licence, Type Approval, Import Permit and selecting a Callsign for 1 (one) equipment respectively?
 - A. \$100, \$50, \$20, \$100
 - B. \$25, \$50, \$20, no charges
 - C. \$25, \$50, \$20, \$100
 - D. \$25, \$20, \$50, no charges

13. As an Authority responsible for radio frequency spectrum allocation, AITI has the right to
- allocate any frequency band to fixed and mobile services only.
 - allocate any frequency band to any services including Amateur Radio, Broadcasting, Fixed and Mobile services, etc.
 - allow any other authority to allocate frequency to any services
 - allow any user to utilise any frequency.
14. For special event such as Jamboree On The Air, AITI allocate callsign in the following prefix
- V84
 - V85
 - V88
 - V89
15. The frequency 430-440MHz is allocated by AITI for amateur radio on secondary basis. What does secondary basis mean?
- User can operate their equipment regardless of existence of primary services.
 - Each and every frequency band user has equal rights
 - Amateur radio services need to increase its transmission power to overcome any interference from primary services
 - Amateur radio services are permitted to use the frequency band if it does not cause any interference to primary services
16. Before any call or test transmission, an amateur radio operator should
- monitor the frequency to ensure that it will not cause interference.
 - not worry for any interference since the equipment used for amateur radio only.
 - contact AITI to make sure his/her operation will not be interrupted.
 - set the frequency to a lower setting to avoid any interference.
17. What is the primary requirement for a VHF (Standard) licence holder to upgraded to a HF (Advance) licence?
- 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.
 - To sit and pass an HF licence written examination.
 - 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.
 - To sit and pass an HF licence practical examination.
18. What are the complete details inside the logbook for amateur radio operators everytime they are on air?
- Duration of conversation time, station callsign which with you are communicating with, frequency band and emission.
 - Duration of conversation time, station which with you are communicating with, frequency band, emission and power output, signal report, QSL.
 - Date, frequency band and emission, power output, conversation time, signal report, statement.
 - Date, frequency band and emission, power output, station callsign which you are communicating with, start and end of conversation time, signal report, QSL.

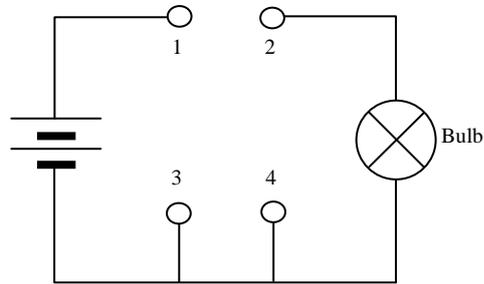
19. Is an approved amateur radio equipment allowed to be modified?
- A. Any approved equipment is not allowed to be modified, unless with written approval from AITI.
 - B. With permission from the Royal Brunei Police Force and Royal Brunei Custom and Excise.
 - C. If the equipment is modified by a certified dealer.
 - D. Once you have obtained a licence and type approval for your equipment, you can immediately modify.
20. Which of the following message below should not be send?
- A. A message to an overseas amateur of any country.
 - B. A message relating to WX.
 - C. A message relating to market a business.
 - D. A message to a large group of amateurs.
21. Which of the statement below is CORRECT regarding installation of amateur radio equipment at a premise?
- 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.
22. Khadijah and Syahmi is having an amateur radio conversation. Which set of conversations below should they avoid
- A. Religion, Business, Politics, Racial and Ethnic slander.
 - B. Hobbies, Education, and Entertainment.
 - C. Sport, Personal details and Socializing.
 - D. Weather, Location and Q-Codes.
23. 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
24. What is required by AITI during random amateur radio inspections?
- A. Station log book and a valid amateur radio station 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

25. An operator has the callsign, V8V4773. He/she is operating
- A. Marine Radio
 - B. Amateur Radio
 - C. Aeronautical Radio
 - D. Satellite Radio
26. A visiting full licensed amateur radio user comes to Brunei Darussalam. His/Her callsign will be
- A. prefixed by V85/ and suffixed by His/Her callsign
 - B. suffixed by V85/ and prefixed by His/Her callsign
 - C. prefixed by V89/ and suffixed by His/Her callsign
 - D. prefixed by V85/ and suffixed issued by AITI
27. 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
28. For 40 meter band, which one of the following frequency band is correct?
- A. 7.0 – 7.1 MHz
 - B. 40.000 – 40.999 MHz
 - C. 5.650-5.925 MHz
 - D. 144.000 – 148.000 MHz
29. What is the 'Q' code for "Who is calling me?"
- A. QRO
 - B. QME
 - C. QCM
 - D. QRZ
30. An amateur radio licensee should renew their licence every?
- A. No renewal required
 - B. 3 months
 - C. 12 months
 - D. 24 months

SECTION B

This section contains 30 questions. Answer *all*.

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



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

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

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

33. An electric current passing through a wire will produce around the conductor.

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

34. $V = IR$ is derived from

- A. Cole's Law
- B. Ohm's Law
- C. Tesla's Law
- D. Tesco's Law

35. The unit for current is

- A. Farad
- B. Ohm
- C. Watt
- D. Ampere

36. What are three good electrical conductors?

- A. Copper, gold, mica
- B. Gold, silver, wood
- C. Gold, silver, aluminium
- D. Copper, aluminium, paper

37. What is the symbol for resistor?

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

38. A 50 hertz current in a wire means that

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

39. The voltage through a $125\text{k}\Omega$ resistor is 100 V. What is the current across this resistor?

- A. 125 milliamperes
- B. 8 amperes
- C. 0.8 milliamperes
- D. 1.25 amperes

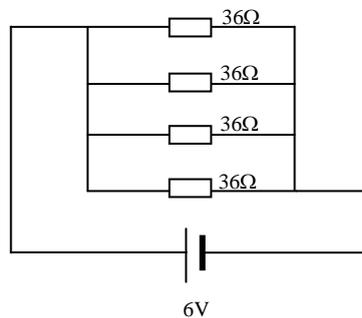
40. The energy supplied to a secondary cell is stored as

- A. a charge of electricity
- B. electrical energy
- C. chemical energy
- D. joules with a potential difference.

41. What is the frequency of an alternating current if the time period is $0.75\ \mu\text{s}$?

- A. 1.3 kHz
- B. 1.3 MHz
- C. 75 Hz
- D. 75 kHz

42. What is the total resistance of four 36 Ohms resistors arranged as shown below?



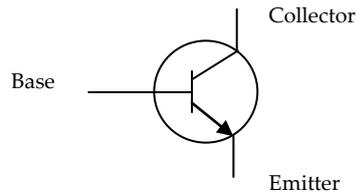
- A. 144 Ohms
- B. 9 Ohms
- C. 0.42 Ohms
- D. 24 Ohms

43. The wavelength of a signal in free space with a frequency of 95.9MHz is

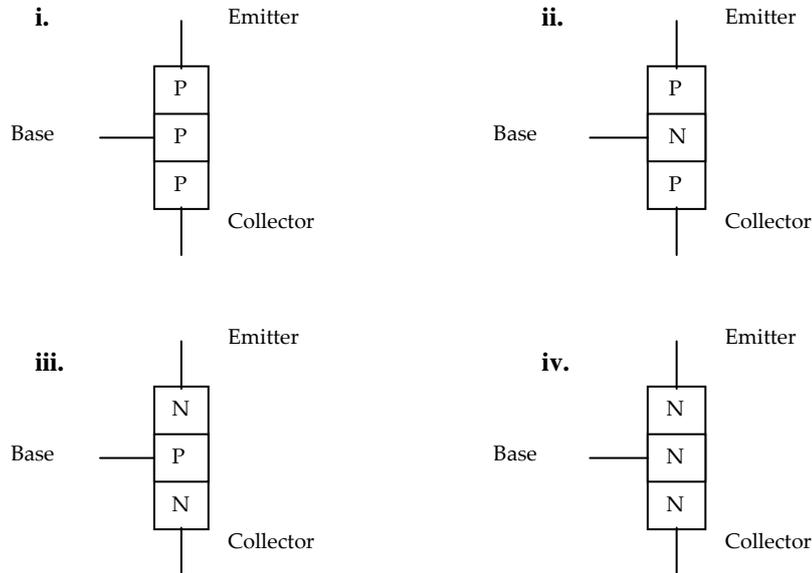
- A. 3.128 meter
- B. 30.28 meter
- C. 5.95 millimeter
- D. 10.42 cm

44.

Symbol transistor



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



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

45. What is the Phonetic Alphabet for 'V85YTI' ?

- A. Victor, Eight, Five, Yankee, Tango, India
- B. Victory, Eight, Five, Yankee, Tango, Indigo
- C. Victory, Eight, Five, Yahoo, Tangy, Indigo
- D. Victor, Eight, Five, Yahoo, Tango, India

46. What is meant by antenna gain

- A. the numerical ratio relating the radiated signal strength of an antenna to that of another antenna
- B. the numerical ratio of the signal in the forward direction to the signal in the back direction
- C. the numerical ratio of the amount of power radiated by an antenna compared to the transmitter output power
- D. the final amplifier gain minus the transmission-line losses (including any phasing lines present)

47. The process of modulation allows

- A. information to be impresses 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

48. What is the frequency band for High Frequency (HF)?
- A. 3000 kHz – 30000 kHz
 - B. 30000 kHz – 300000 kHz
 - C. 300000 kHz – 3000000 kHz
 - D. 300 MHz – 3 GHz
49. 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 lightning
50. 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
51. 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
52. An amateur wishes to achieve a greater range on VHF and UHF, which option is likely to be most successful?
- A. Increase antenna height above surrounding roof
 - B. Double the receiving stations transmitter power
 - C. Use UHF for greatest range
 - D. Move the antenna on the ground in the garden
53. Define which antenna comprises of a center-fed driven element for transmitting or receiving radio frequency energy?
- A. Omni-directional Antenna
 - B. Half wavelength dipole
 - C. Yagi Antenna
 - D. Straight wire antenna
54. A harmonic is
- A. a whole number multiple of a frequency
 - B. a sub multiple of a frequency
 - C. any frequency greater than the fundamental frequency
 - D. any frequency causing interference

55. What is a loop antenna
- A. a large circularly-polarised antenna
 - B. a small coil of wire tightly wound around a toroidal ferrite core
 - C. several turns of wire wound in the shape of a large open coil
 - D. any antenna coupled to a feed line through an inductive loop of wire
56. Radio Horizon is define as
- A. the line of sight between two transmissions
 - B. the communications done in coastal areas
 - C. the point where radio signals between two points are blocked by the curvature of the Earth
 - D. the communications to the space-station during ideal weather condition
57. The main characteristic of a omni-directional antenna is that it
- A. requires few insulators
 - B. is very sensitive to signals coming from horizontal aerials
 - C. receives signals from all points around it equally well
 - D. is easy to feed with TV ribbon feeder
58. What is the purpose of repeater operation
- A. to cut your power bill by using someone else's higher power system
 - B. to help mobile and low-power stations extend their usable range
 - C. to transmit signals for observing propagation and reception
 - D. to communicate with station in services other than amateur
59. A power amplifier has a gain of 3dB. If you input 5W, the output would be?
- A. 0.2W
 - B. 10W
 - C. 0.4W
 - D. 5W
60. The purpose of a 2 meter repeater is to
- A. provide amateur operation without the use of callsigns
 - B. provide communication for emergency purposes
 - C. make possible VHF contacts over longer distance
 - D. experiment with frequency shift techniques