

සියලු ම හිමිකම් ඇවිරිණි/  
முழுப் பதிப்புரிமையுடையது/  
All Rights Reserved]

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව/இலங்கைப் பரீட்சைத் திணைக்களம்/ Department of Examinations, Sri Lanka

EXAMINATION FOR THE AMATEUR RADIO OPERATORS' CERTIFICATE OF PROFICIENCY ISSUED  
BY THE DIRECTOR GENERAL OF TELECOMMUNICATIONS, SRI LANKA - 2002  
(NOVICE CLASS)

Licensing Conditions, Operating Practices & Procedures

One hour

Answer all questions on this paper itself.

Pick out the correct answer and underline it. Pass mark 50%.

Index No:.....

1. All times entered in the log book shall be in  
(a) local time of the transmitting station.  
(b) local time of the receiving station.  
(c) in standard time of the region  
☒ (d) UTC
2. Abbreviation for closing station is  
(a) CP (b) C ☒ (c) CL (d) CQ
3. Items that are to be inspected by an officer acting under the Director General of Telecommunication Regulatory Commission.  
(a) log book only. (b) station and log book only.  
☒ (c) station, logbook and licence. (d) log book and licence only.
4. Direction CQ calls should  
(a) be made only on CW ☒ (b) not be acknowledged  
(c) not be made (d) be acknowledged
5. Telegraphy by on-off keying of an amplitude modulated Audio frequency, double side band, for reception by ear is denoted by  
☒ (a) A2A (b) A1A (c) A2B (d) H2B
6. To prevent annoying other uses on a band, a transmitter could always be tuned initially.  
(a) on a harmonic out side the band  
(b) into an antenna that disipiate very low radiation  
(c) into a matched load  
☒ (d) into a dummy load
7. When using phonetics the licence document specifies that the phonetic alphabet  
(a) should be used ☒ (b) is not necessary  
(c) is mandetory (d) none of these.
8. Time in the log book must always be in  
(a) Local time ☒ (b) UTC (c) BST (d) any one of above
9. Before initiating a CQ, the signal "QLR" <sup>SKL</sup> is often send  
(a) once only ☒ (b) two or three times  
(c) five or six times (d) any number of times
10. Abbreviation for "stand by" is  
(a) AS ☒ (b) AR (c) VA (d) SK
11. The Novice class B licence does not authorise the use of the frequencies for transmitting  
☒ (a) below 30 MHz (b) above 30 MHz  
(c) in the Microwave Range (d) All of above
12. Which of the following occurrences need not be entered in the station log book ?  
☒ (a) initial calls (CQ cells) (b) call sign of celling station  
(c) details of tests carried out (d) station operated at a temporary location

[See page two

13. During transmission, amateur stations are required to transmit. Their call signs at intervals not exceeding
  - (a) 2 minutes
  - (b) 3 minutes
  - ✓(c) 5 minutes
  - (d) 7 minutes
14. In the RST code T is for
  - (a) time of transmission
  - (b) transmitter
  - ✓(c) tone
  - (d) temperature
15. Before initiating a "CQ" call
  - (a) listen on the frequency
  - (b) send "QRL" signal often 2 or 3 times
  - (c) "CQ" calls to a specific station is avoided
  - ✓(d) all the above are correct
16. Amplitude Modulated Double Side Band (DSB) is designated by
  - ✓(a) A3E
  - (b) F3E
  - (c) H3E
  - (d) J3E
17. What emission designator describes FM voice transmission
  - (a) A3E
  - ✓(b) F3E
  - (c) H3E
  - (d) H3E
18. "Please change frequency" is given by Q - code.
  - (a) QSV
  - ✓(b) QSY
  - (c) QSP
  - (d) QST
19. "Your keying is defective" is given by Q - code
  - (a) QST
  - (b) QSB
  - (c) QSY
  - ✓(d) QSD
20. "I am ready" is given by Q - code
  - ✓(a) QRV
  - (b) QRP
  - ✓(c) QRV
  - (d) QRQ
21. The correct group using the International Phonetic Alphabet is
 

(a) NOVEMBER	SIERRA	UNIFORM	VICTOR
(b) NOVEMBER	SARAH	UNIFORM	VICTOR
(c) NOVEMBER	SIERRA	UNIFORM	VIOLET
(d) NOVEMBER	SIERRA	UNCLE	VICTOR
22. The correct phonetic alphabet for the word WIRE is
 

(a) WHISKEY	INDIA	ROMEO	ECHO
(b) WHISKEY	ISSAC	ROMEO	ECHO
(c) WILLIAM	ISSAC	ROMEO	ECHO
(d) WILLIAM	ISSAC	ROBERT	EDWARD
23. Abbreviation  $\overline{KA}$  means
  - ✓(a) Starting Signal
  - (b) end of work
  - (c) Please do not interfere
  - (d) end of QSO
24. Q code abbreviation QTH means
  - ✓(a) What is your location
  - (b) Are my signal Fading
  - (c) I my keying defective
  - (d) What is the strength of my signal
25. When operating in Mobile, the licensee shall have the call sign with the suffix
  - (a) 1/MM'
  - (b) 1/p'
  - (c) 1/M'
  - (d) 1/PP'

Not clear.

1/MM' 1/M

පිටු 0 නිමව ඇවිත්  
 முழுப் பதிப்புரிமையுடையது/  
 All Rights Reserved]

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව/ இலங்கைப் பரீட்சைத் திணைக்களம்/ Department of Examinations, Sri Lanka

EXAMINATION FOR THE AMATEUR RADIO OPERATORS' CERTIFICATE OF PROFICIENCY ISSUED  
 BY THE DIRECTOR GENERAL OF TELECOMMUNICATIONS, SRI LANKA - 2002

(NOVICE CLASS)


### Basic Electricity, Radio and Electronics Theory

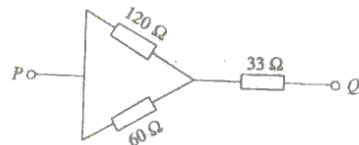
Two hours

Answer all questions on this paper itself.

Index No : .....

Pick out the correct answer and underline it. Pass mark 50%.

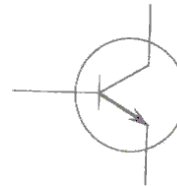
- Hertz is a measuring unit of  
 (a) voltage (b) current ☒ (c) frequency (d) resistance
  - $V = IR$  is called  
 (a) Thevenin's law ☒ (b) Ohm's law (c) Norton's theorem (d) Kirchhoff's law
  - The symbol  indicates in electrical circuits  
☒ (a) a power source (b) voltmeter  
 (c) ammeter (d) resistor
  - The value of the resistor shown in the figure is  
 (a)  $1.5 \Omega$  (b)  $15 \Omega$   
☒ (c)  $150 \Omega$  (d)  $1500 \Omega$
- A cylindrical resistor with three color bands. From left to right, the bands are Brown, Green, and Brown. Arrows point from the text 'Brown', 'Green', and 'Brown' to their respective bands.
- A coil has a resistance of  $X \Omega$  and  $Y$  reactance of  $6 \Omega$ . The impedance is  
 (a)  $\sqrt{XY}$  (b)  $\sqrt{X+Y}$  (c)  $\sqrt{X/Y}$  ☒ (d)  $\sqrt{X^2 + Y^2}$
  - A circuit element absorbs 500 W of power with a current of 10 A. Its voltage is  
 (a) 510 V (b) 490 V (c) 500 V ☒ (d) 50 V
  - The internal resistance of an ideal current source is  
 (a) finite (b) infinite (c) unknown ☒ (d) zero
  - 0.1 picofarad is equal to  
 (a)  $1 \times 10^{-10} \text{ F}$  (b)  $1 \times 10^{-11} \text{ F}$  ☒ (c)  $1 \times 10^{-12} \text{ F}$  (d)  $1 \times 10^{-13} \text{ F}$
  - The peak to peak value of 220 V, 50 Hz main supply is  
☒ (a)  $220\sqrt{2} \text{ V}$  (b)  $2 \times 220\sqrt{2} \text{ V}$  (c) 220 V ☒ (d)  $220\sqrt{2} \text{ V}$
  - A transformer is laminated to  
 (a) reduce eddy current (b) increase eddy current  
☒ (c) reduce hysteresis losses (d) increase hysteresis losses
  - The effective resistance between P and Q in the cct shown is  
 (a)  $33 \Omega$  ☒ (b)  $73 \Omega$   
 (c)  $60 \Omega$  (d)  $120 \Omega$



See page two

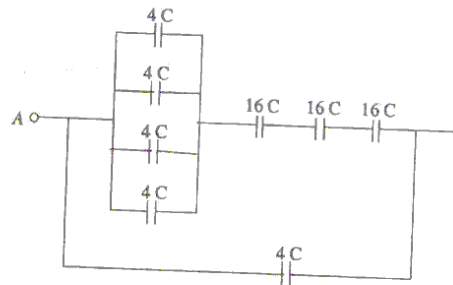
12. The number of layers in thyristor are  
 (a) one (b) two (c) three ☒ (d) four
13. What is the power consumed by a transmitter taking 0.5 A at 6V.  
☒ (a) 3 W (b) 6 W (c) 30 W (d) 300 W

14. The symbol shown indicates a  
☒ (a) Bipolar transistor (b) Silicon controlled rectifier  
 (c) Zener diode (d) FET



15. Ratio detector is used for the detection of  
 (a) CW signals ☒ (b) FM signals (c) SB signals (d) AM signals

16. What is the total capacitance between the Points A & B in the given circuit ?  
 (a) C  
 (b) 4C  
☒ (c) 8C  
 (d) 16C



17. The resonant frequency of tuned (LRC) circuit is  
☒ (a)  $\frac{1}{2\pi\sqrt{LC}}$  (b)  $\frac{1}{2\pi}\sqrt{L/C}$  (c)  $\frac{1}{2\pi}\sqrt{LC}$  (d)  $\frac{2\pi}{\sqrt{LC}}$
18. The output signal of a balanced modulator is  
 (a) DSB (b) AM (c) FM ☒ (d) SSB
19. A properly terminated transmission line has a reflection coefficient of  
☒ (a) zero (b) 0.5 (c) 1 (d) infinity
20. The radiation resistance of a folded dipole antenna is  
 (a)  $50\Omega$  (b)  $75\Omega$  (c)  $150\Omega$  ☒ (d)  $300\Omega$
21. The meggar is used for  
 (a) measuring current (b) measuring voltage  
 (c) measuring power ☒ (d) testing insulation
22. When 4 V emf is applied across a 1F capacitor the energy stored in the capacitor  
 (a) 2 J (b) 4 J (c) 8 J ☒ (d) 16 J
23. Power factor of a pure inductor is  
☒ (a) zero (b) one (c) 0.5 (d) more than one.
24. A 75 MHz carrier signal having an amplitude of 50 V is modulated by a 3 kHz audio signal having an amplitude of 20 V. The modulation factor of the amplitude modulated wave is  
☒ (a) 0.4 (b) 0.6 (c) 0.8 (d) 1.0

[See page three

*Question is wrong*

25. What is the characteristic impedance of a transmission line which has a capacitance of 50 PF/M  
 (a)  $\frac{10}{\pi} \Omega$  (b) 100  $\Omega$  (c)  $\sqrt{3} \times 100 \Omega$  (d)  $\frac{1}{\sqrt{3}} \times 100 \Omega$
26. For better signal reception the S/N ratio should be  
 (a) low (b) medium (c) high (d) zero
27. The automatic gain control (AGC) circuit is usually used to control the gain of the  
 (a) mixer (b) detector (c) IF amplifier (d) audio amplifier
28. Which amplifiers are used to increase the RF power level in AM transmitters  
 (a) class AB (b) Class C (c) Class B (d) Class A
29. In the ionosphere, the lowest, layer is  
 (a) D layer (b) E layer (c) F<sub>1</sub> layer (d) F<sub>2</sub> layer
30. As frequency increases the reactance of an inductor  
 (a) decreases (b) increases (c) stays constant (d) none of these
31. As voltage increase the capacitance of a capacitor  
 (a) decreases (b) increases (c) stays constant (d) none of these
32. As frequency increases the reactance of an resistor  
 (a) decreases (b) increases (c) stays constant (d) none of these
33. The average value of a sine wave is  
 (a) 1 (b) peak value/ $\sqrt{2}$  (c) Peak value  $\times \sqrt{2}$  (d) zero
34. Current is defined as  
 (a) rate of change of charge (b) rate of change of flux (c) rate of change of voltage (d) product of charge and time
35. The voltage and current across a resistor are 5V and 2A respectively. Its resistance and power are  
 (a) 2.5  $\Omega$  and 10 W (b) 0.5  $\Omega$  and 10 W (c) 3.0  $\Omega$  and 7 W (d) 3.0  $\Omega$  and 3 W
36. For d.c. voltage an ideal inductor act as  
 (a) an open circuit (b) a short circuit (c) a finite resistance (d) 7.0  $\Omega$  and 3 W
37. A capacity is defined by  
 (a)  $Q = CV$  (b)  $i = C \left( \frac{dv}{dt} \right)$  (c)  $V = C \left( \frac{di}{dt} \right)$  (d)  $Q = CI$
38. Conductance of a piece of material of resistivity  $\rho = 3 \times 10^{-3}$  ohm/m of length  $L = 4000$  m and cross section area of  $A = 6 \times 10^{-6} \text{ m}^2$  is  
 (a)  $\frac{1}{2} \times 10^6$  (b)  $\frac{1}{2} \times 10^{-6}$  (c)  $2 \times 10^6$  (d)  $2 \times 10^{-6}$

39. Over modulation in an F.M. Transmission will cause  
(a) heavy distortion. (b) to occupy wide bandwidth.  
(c) to occupy narrow bandwidth. (d) none of the above.
40. What happens to the input impedance of a yagi antenna when more elements are added ?  
(a) decrease. (b) increase.  
(c) will cause unbalanced. (d) remains unchanged.
41. Zenor diodes are used in  
(a) modulator. (b) demodulator.  
(c) dc power supply. (d) frequency mill.
42. Moving coil instrument can be used to measure  
(a) ac values only. (b) dc values only.  
(c) both dc and ac values. (d) frequency of a wave form.
43. The frequency range from 30MHz - 300 MHz is  
(a) low frequency. (b) high frequency.  
(c) very high frequency. (d) ultra high frequency.
44. Transformers operate on  
(a) an ac supply only. (b) both ac and dc supply.  
(c) a dc supply only. (d) all of the above are not correct.
45. 30 dB power gain is an increase by  
(a) 3 times. (b) 30 times. (c) 100 times. (d) 1000 times.
46. For constant dc Voltage a capacitor act as  
(a) a short circuit. (b) an open circuit.  
(c) a finite resistance. (d) a switch.
47. One way communication is called *No as per, answer is Broadcast*  
(a) simplex. (b) half duplex. (c) duplex. (d) inter com.
48. 35.1 MHz is the third harmonic of  
(a) 175.5 MHz. (b) 105.3 MHz. (c) 70.2 MHz. (d) 11.7 MHz.
49. The ability of a receiver to separate signals on different frequencies is defined as  
(a) sensitivity. (b) selectivity. (c) screening. (d) none of the above.
50. The unit of magnetic field is  
(a) hertz. (b) ampere / meter. (c) volt. (d) ohm.

Answers for  
Novice Class - 2002  
Licensing Conditions, Operating Practices and Procedures

- |       |       |       |       |          |
|-------|-------|-------|-------|----------|
| 1. d  | 2. c  | 3. c  | 4. b  | 5. a     |
| 6. d  | 7. b  | 8. b  | 9. b  | 10. b    |
| 11. a | 12. a | 13. c | 14. c | 15. d    |
| 16. a | 17. b | 18. b | 19. d | 20. a    |
| 21. a | 22. a | 23. a | 24. a | 25. .... |

Answers for  
Novice Class - 2002  
Basic Electricity, Radio and Electronics Theory

- |       |         |         |       |       |
|-------|---------|---------|-------|-------|
| 1. c  | 2. b    | 3. a    | 4. c  | 5. d  |
| 6. d  | 7. d    | 8. c    | 9. a  | 10. c |
| 11. b | 12. d   | 13. a   | 14. a | 15. b |
| 16. c | 17. a   | 18. d   | 19. a | 20. d |
| 21. d | 22. d   | 23. a   | 24. a | 25. d |
| 26. c | 27. c   | 28. ??? | 29. a | 30. b |
| 31. c | 32. d   | 33. b   | 34. a | 35. a |
| 36. b | 37. a   | 38. b   | 39. b | 40. a |
| 41. c | 42. b   | 43. c   | 44. a | 45. d |
| 46. b | 47. ??? | 48. d   | 49. b | 50. b |