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முழுப் பதிப்புரிமையுடையது/
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EXAMINATION FOR THE AMATEUR RADIO OPERATORS' CERTIFICATE OF PROFICIENCY
ISSUED BY THE DIRECTOR GENERAL OF TELECOMMUNICATIONS, SRI LANKA - 2001
(GENERAL CLASS)

Licensing Conditions, Operating Practices and Procedures

One hour

Index No. :

Answer all questions on this paper itself.

A minimum of 50 marks is required for a pass. Pick out the correct answer and underline it.

- When an Amateur station is operating from a ship in the Indian Ocean the call sign should be
(a) 457XX|MM|1 (b) 457XX|MM|2 (c) 457XX|MM|3 (d) 457XX|MM
- Which one of the following operations constitutes a breach of the conditions of the Amateur Radio Licence?
(a) To operate F3E on 144.35 MHz
(b) To operate A1A telegraphy on 14.320 MHz
(c) To operate fast scan TV on 1.930 MHz
(d) To on pass a message of an amateur who is very sick to his family
- A transmitter operates on a frequency of 145 MHz. Interference is caused to a receiver on the VHF broadcast band (88 – 108 MHz) due to close proximity of the transmitting antenna and the relative weak signal strength of broadcasting station. The type of filter that may be used to eliminate the interference is a
(a) high pass filter in the receiver antenna feeder.
(b) low pass filter in the receiver antenna feeder.
(c) filter in the main supply lead to the transmitter.
(d) low pass filter in the transmitter antenna feeder.
- The purpose of a two tone test in a SSB transmitter is to
(a) check the access to a repeater station.
(b) occupy a free channel before transmission.
(c) provide station identification.
(d) check the operation of SSB linear amplifier.
- The abbreviation for signals fading is
(a) QSB. (b) QSD. (c) QSL. (d) QSO.
- Using the international phonetic Alphabet GIRL would be
(a) Green Ivory Red Lima. (b) Golf India Romeo Lima.
(c) Green India Romeo Lima. (d) Golf India Romeo Lime.
- The abbreviation WA means on CW
(a) end of work. (b) word after. (c) work after. (d) work array.
- Which of the following types of messages can be received by an amateur licensee?
(a) Diplomatic transmission (b) Standard frequency transmission
(c) Air force transmission (d) Secret transmission
- Amplitude modulated single side band with suppressed carrier is denoted by
(a) J3E. (b) H3E. (c) G3E. (d) A3E.
- Q code abbreviation QRG means
(a) will you tell me my exact frequency? (b) does my frequency vary?
(c) what is the tone of my transmission? (d) what is the readability of my signal?
- Abbreviation KN means
(a) invitation to any station to transmit. (b) invitation to a particular station to transmit.
(c) end of transmission. (d) end of message or communication.

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12. "Increase power" is given by Q - code
(a) QRO. (b) QRP. (c) QRQ. (d) QRS.
13. What emission designator describes PM (Phase Modulation) voice transmission?
(a) F3E (b) H3E (c) A3E (d) G3E
14. Which of the following represents a valid amateur station log?
(a) in an exercise book (b) on a magnetic-tape or disc
(c) on any electronic storage media (d) all the above are correct
15. During transmissions, 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.
16. Direction CQ calls should
(a) be made. (b) not be made. (c) be acknowledged. (d) not be acknowledged.
17. The satellite transponders will accept
(a) CW. (b) SSB. (c) RTTY. (d) All the above.
18. A perfectly matched system will have an SWR
(a) 1 to 1. (b) 1 to 2. (c) 2 to 1. (d) 1 to less than 1.
19. The impedance of a $\lambda/2$ antenna at the centre point is roughly
(a) 70 Ω . (b) 50 Ω . (c) 300 Ω . (d) $\propto \Omega$
20. The characteristics of the receivers
(a) sensitivity. (b) selectivity.
(c) frequency stability. (d) all the above are correct.
21. Q - code abbreviation QRM means
(a) Are you busy? (b) Are you being interfered with?
(c) Are you troubled by static? (d) Are you ready
22. The licensee shall keep the log for inspection by an officer authorized by the Director General Telecommunications from the date of last entry for at least
(a) 1 month. (b) 3 months. (c) 6 months. (d) 1 year.
23. The purpose of a terrestrial repeater is to
(a) increase satellite coverage. (b) increase the range of mobile stations.
(c) increase the range of fixed stations. (d) minimise contacts by pedestrian stations.
24. The band plans should be observed because
(a) they are mandatory. (b) they are governed by international regulation
(c) they are intended to aid operating. (d) they are only for novices.
25. It is good safety practice to
(a) use plastic piping for earthing. (b) unearth all metal cases.
(c) have no master switch. (d) supply all main power via a master switch.

செய்து கொடுக்க /
செய்து கொடுக்க /
[Reserved]

பொதுத் தேர்வுகள் / இலங்கைப் பரீட்சைத் திணைக்களம் / Department of Examinations, Sri Lanka

**EXAMINATION FOR THE AMATEUR RADIO OPERATORS' CERTIFICATE OF PROFICIENCY
HELD BY THE DIRECTOR GENERAL OF TELECOMMUNICATIONS, SRI LANKA - 2001
(GENERAL CLASS)**

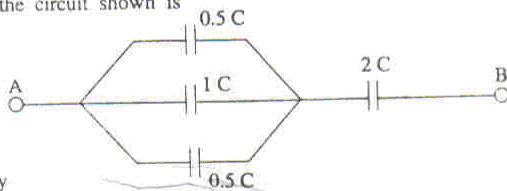
Fundamentals of Electricity and Radio Communications

Two hours

Index No. :

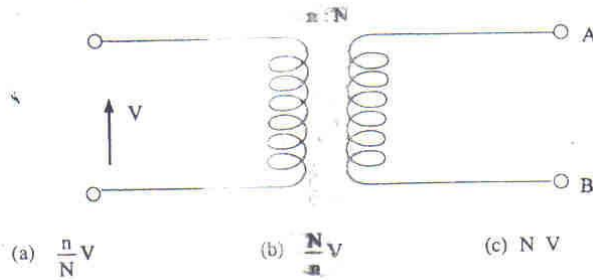
Answer all questions on this paper itself.

A sum of 50 marks is required for a pass. Pick out the correct answer and underline it.

- The frequency of the 230 V main supply is
 (a) 50 Hz. (b) 110 Hz. (c) 60 Hz. (d) 50 Hz.
- Which of the following gives very sensitivity to the temperature change?
 (a) Resistor (b) Thermistor (c) Inductor (d) Capacitor
- For A.C. voltage, a capacitor acts as
 (a) short circuit. (b) a closed circuit. (c) an open circuit. (d) a LC circuit.
- A current can induce voltage because, it has
 (a) positive value. (b) negative value.
 (c) varying magnetic field. (d) constant magnetic field.
- Generally fullwave rectifying diode bridge consists of
 (a) 04 Nos. diodes. (b) 03 Nos. diodes. (c) 02 Nos. diodes. (d) 01 No. diode.
- By using a CRO, we can observe the
 (a) value of a resistor. (b) waveforms.
 (c) value of a Inductor. (d) value of a capacitor.
- Generally with temperature increase, the resistance of a conductor will
 (a) decrease. (b) increase. (c) stay constant. (d) be zero.
- If a current flows through a electric bulb, it has a resistance of 45Ω . The dissipated power for 2 minutes
 (a) 12-15 J. (b) 121-50 J. (c) 1215 J. (d) 12150 J.
- The effective capacitance between A and B in the circuit shown is
 (a) 1 C.
 (b) 3 C.
 (c) 13 C.
 (d) 34 C.
- 
- The power taken by a 3-phase load is given by
 (a) $\sqrt{3} VI$. (b) $3 VI$. (c) $\sqrt{3} VI$. (d) $\sqrt{2} VI$.
- The frequency range from 300 kHz to 3 MHz is
 (a) Microwave. (b) MF. (c) HF. (d) VHF.
- The power in an AM signal is in the
 (a) carrier. (b) modulating signal. (c) side bands. (d) none of these.
- In a class AB amplifier with sinusoidal input signal the output current flows for
 (a) full cycle. (b) a half cycle.
 (c) less than a half cycle. (d) more than a half cycle.

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14. Frequency translation is done with a circuit called a
 (a) closed. (b) ~~opened~~. (c) mixer. (d) filter.
15. Pre-emphasis circuit is used
 (a) before modulation. (b) after modulation.
 (c) before demodulation. (d) after demodulation.
16. The voltage induced between terminals A and B in the diagram shown is



- (a) $\frac{n}{N} V$ (b) $\frac{N}{n} V$ (c) $N V$ (d) $n V$
17. The unit of a e-field is
 (a) Ohm. (b) ~~Henry~~. (c) Volt (d) Ampere.
18. Product detector is used for the ~~detection~~ of
 (a) carrier signal. (b) SSB and CW signals.
 (c) AM signal. (d) FM signal.
19. The electric flux and intensity inside a conducting sphere is
 (a) constant value. (b) ~~increasing~~. (c) decreasing. (d) zero.
20. SWR is measured by means of
 (a) a CRO. (b) ~~a frequency counter~~. (c) a dipmeter. (d) a reflectometer.
21. The ionosphere causes signals to be
 (a) refracted. (b) ~~rejected~~. (c) reflected. (d) refused.
22. Which of the following combination forms a highpass filter?
 (a) Resistors and inductors (b) Capacitors and resistors
 (c) Series inductor and shunt capacitor (d) Series capacitors and shunt inductor
23. Power factor is given by
 (a) $\sin \phi$. (b) $\cos \phi$. (c) $\tan \phi$. (d) none of the above.
24. The current through a resistor
 (a) can change suddenly. (b) cannot change suddenly.
 (c) is always zero. (d) is never zero.
25. A VFO should ideally be followed by a
 (a) class A amplifier (b) power amplifier. (c) buffer amplifier. (d) lowpass filter.
26. Geo-stationary satellite is placed in equatorial orbit at a height of
 (a) 36 000 km. (b) 27 000 km. (c) 18 000 km. (d) 9 000 km.
27. A diode bridge is used to convert
 (a) AC to DC. (b) analogue to digital. (c) DC to AC. (d) digital to analogue.
28. The current that causes a full scale deflection of 1 volt in a voltmeter quoted as $10 \text{ k}\Omega/\text{V}$
 (a) $5 \mu\text{A}$. (b) $10 \mu\text{A}$. (c) $50 \mu\text{A}$. (d) $100 \mu\text{A}$.
29. The energy stored in a capacitor C is given by
 (a) $\sqrt{2} C V^2$. (b) $\sqrt{2} C V^2$. (c) $\frac{1}{\sqrt{2}} C V^2$. (d) $\frac{1}{2} C V^2$.

- An ideal diode has an internal resistance, when forward biased
 (a) infinite. (b) zero. (c) in $k\Omega$ range. (d) in $M\Omega$ range.
- A transistor can be used as a
 (a) amplifier. (b) resistor. (c) capacitor. (d) inductor.
- A stable carrier wave in radio transmitters will be produced by
 (a) signal generator. (b) crystal oscillators.
 (c) frequency counter. (d) CRO.
- Colpitts and clapp - gourié are most commonly used
 (a) oscillators. (b) transmitters. (c) receivers. (d) transceivers.
- The reactance of a 0.5 H smoothing choke at a frequency of 50 Hz is
 (a) $25\pi\ \Omega$. (b) $50\pi\ \Omega$. (c) $200\pi\ \Omega$. (d) $250\pi\ \Omega$.
- Simultaneous both-way communications is called
 (a) bicomunication. (b) simplex. (c) full duplex. (d) half duplex.
- The following stage in a radio receiver provides the maximum image signal selectivity
 (a) Audio amplifier. (b) RF amplifier.
 (c) Frequency modulator. (d) Crystal oscillator.
- A vertical antenna will provide
 (a) circular polarisation. (b) high angle radiation.
 (c) low angle radiation. (d) elliptical polarisation.
- The wavelength of a signal in free space with a frequency of 300 MHz is
 (a) 10 mm . (b) 0.1 m . (c) 1 m . (d) 10 m .
- A moving coil meter by itself only responds to
 (a) DC. (b) AC. (c) AC and DC both. (d) power.
- A reversed biased PN junction allows
 (a) current to flow from P to N. (b) non current to flow.
 (c) electrons to flow from N to P. (d) none of the above.
- A "trap" is
 (a) a simple stop filter. (b) a simple notch filter.
 (c) consisting of a single resonant circuit. (d) all the above are correct.
- Most amateur speech transmissions use SSB or FM in
 (a) J3E or A3E modes. (b) J3E or F3E modes.
 (c) A3E or H3E modes. (d) F3E or H3E modes.
- Which of the following layers tend to combine into a single layer at night?
 (a) D and E (b) E and F_1 (c) F_1 and F_2 (d) D and F
- Noise in a frequency modulated system, may be reduced by
 (a) decreasing temperature. (b) decreasing deviation.
 (c) narrowing the band width. (d) widening the band width.
- The main purpose of performing open-circuit test at rated voltage is to measure
 (a) core loss. (b) efficiency. (c) resistance. (d) inductance.
- The output amplifier of an SSB transmitter must
 (a) act as a switch. (b) be in a linear mode.
 (c) be in a non-linear mode. (d) act as a multiplier.
- Fading can be caused by
 (a) a poor antenna. (b) horizontal polarisation.
 (c) interaction of the sky and ground wave. (d) poor coaxial cable.
- As frequency increases the ionisation to reflect a signal back to the earth must
 (a) decrease. (b) go to zero. (c) not change. (d) increase.

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49. The signals returned from the layers above the earth are referred to as
- (a) the ground wave.
 - (b) the ionospheric wave.
 - (c) the tropospheric wave.
 - (d) the direct wave.
50. The effective resistance between P and Q of the circuit shown is
- (a) $10\ \Omega$.
 - (b) $50\ \Omega$.
 - (c) $70\ \Omega$.
 - (d) $72\ \Omega$.

