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

Licensing Conditions, Operating Practices and Procedures

One hour

Answer all questions on this paper itself.

Index No. :

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

1. An Amateur licence requires, minimum
 - (a) a pass in the RAE and morse test.
 - (c) a pass in the morse test only.
 - ✓(b) a pass in the RAE only.
 - (d) applicants must be over 14 years of age.
2. As well as amateur frequency transmission, the licence allows reception of
 - (a) diplomatic messages.
 - (c) news agency transmissions.
 - ✓(b) standard frequency transmission.
 - (d) police transmission.
3. Before making a CQ call.
 - ✓(a) listen on the frequency before commencing.
 - (c) send a 1750 Hz tone.
 - (b) send a series of Vs in morse.
 - (d) keep giving your call sign.
4. Q - code abbreviation QRQ means
 - ✓(a) shall I send faster.
 - (c) are you ready.
 - (b) shall I change power.
 - (d) are you troubled by static.
5. Q - code abbreviation QRL means
 - (a) shall I change frequency.
 - ✓(c) are you busy.
 - (b) shall I send slowly.
 - (d) are you being interfered with.
6. Q - code abbreviation QSB means
 - (a) reply in morse.
 - (c) change frequency.
 - (b) stop transmitting.
 - ✓(d) there is fading.
7. Q - code abbreviation QSA means
 - ✓(a) what is the strength of my signal.
 - (c) what is the time.
 - (b) what is your location.
 - (d) what is your position.
8. Abbreviation for "what is the correct time" is
 - (a) QSY
 - (b) QSZ
 - (c) QTH
 - ✓(d) QTR
9. Abbreviation for "How do you receive me" is
 - (a) HR
 - ✓(b) HW
 - (c) HT
 - (d) HF
10. The correct phonetic alphabet for the word "WIN" is
 - (a) World, India, November
 - ✓(c) Whisky, India, November
 - (b) Whisky, India, Noon
 - (d) Whisky, Indonesia, November
11. The correct group using the international phonetic alphabet is
 - (a) Echo, Golf, Zoo
 - (b) Each, Gate, Zulu
 - (c) Echo, Gate, Zulu
 - ✓(d) Echo, Golf, Zulu
12. In amateur transmission it is not permissible to use
 - (a) Plain language.
 - (b) morse code.
 - (c) Q - code.
 - ✓(d) secret code.
13. The Novice Class B licence does not authorise to use
 - ✓(a) below 30 MHz.
 - (b) above 30 MHz.
 - (c) UHF.
 - (d) above GHz range.

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14. Using speech transmission, A3E corresponds to
(a) SSB ✓(b) DSB (c) FM (d) DSSB
15. RST stand for
(a) Readability, Safety, Tone ✓(b) Readability, Signal strength, Tone
(c) Radio transmitter, Safety, Tone (d) Radio transmitter, Signal strength, Tone
16. Which of the following can be entered in the station log book?
(a) Date (b) Class of emission (c) CQ calls ✓(d) All the above are correct
17. Abbreviation for "closing station" is
(a) CM ✓(b) CL (c) CQ (d) AT
18. Transmitting a CQ is to
(a) open station. (b) end communication.
(c) continue communication. ✓(d) none of the above.
19. It is an offence to send by wireless telegraphy
(a) test transmission. (b) serve weather warnings.
✓(c) certain misleading messages. (d) ASCII codes.
20. The Band plans should be observed because
✓(a) they are mandatory. (b) they are governed by international regulations.
(c) they are intended to aid operating. (d) they are only for novices.
21. When calling a station it is a good practice to
(a) put your call sign first. ✓(b) put the call sign of the station being called first
(c) put your call sign first. (d) none of the above.
22. The purpose of a terrestrial repeater is to
(a) increase satellite coverage. ✓(b) increase the range of fixed stations.
(c) minimise contacts by pedestrian stations. (d) increase the range of mobile stations.
23. Codes and abbreviations may be used by the licence as long as
(a) they are specified only by the RSGB.
(b) they are in secret cypher.
(c) Q codes only are used.
(d) they do not obscure the meaning of the communication.
24. Time in the log book must always be in
(a) Local time. ✓(b) UTC. (c) BST. (d) UTC + 1 hour
25. The only general call allowed from an amateur station is
✓(a) a CQ call. (b) a news bulletin. (c) third party call. (d) on VHF.

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ISSUED BY THE DIRECTOR GENERAL OF TELECOMMUNICATIONS, SRI LANKA - (2001)
(NOVICE CLASS)

Basic Electricity, Radio and Electronic Theory

Two hours

Index No. :

Answer all questions on this paper itself.

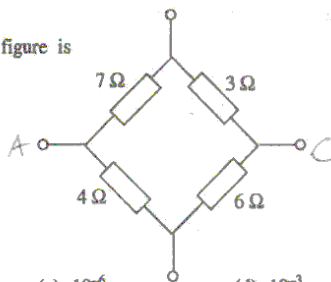
A minimum of 50 marks is required for a pass. Pick out the correct answer and underline it.

- Henry is a measuring unit of
(a) resistance. (b) capacitance. (c) inductance. (d) frequency.
- The average value of a sine wave is
(a) half peak value. (b) full peak value. (c) one. (d) zero.
- The symbol shown in the figure indicates a
(a) transformer. (b) coil. (c) resistor. (d) capacitor.







- A coil has a resistance of 0.3Ω and a reactance of 0.4Ω . The effective impedance is
(a) 0.3Ω . (b) 0.4Ω . (c) 0.5Ω . (d) 0.7Ω .
- The number of coils in the single phase transformer
(a) one. (b) two. (c) three. (d) four.

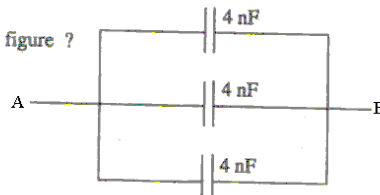
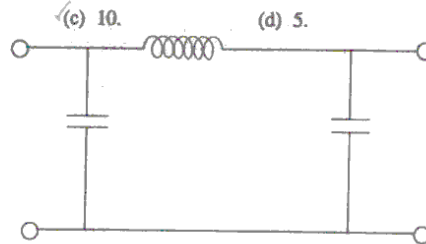
- The effective resistance between A and C in the figure is
(a) 20Ω .
(b) 10Ω .
(c) 5Ω .
(d) 0 .



- The prefix 'Pico' is equivalent to
(a) 10^{-12} . (b) 10^{-9} . (c) 10^{-6} . (d) 10^{-3} .
- The power dissipated in the resistor R, when current I flows through it
(a) I^2R . (b) IR^2 . (c) IR . (d) V^2R .
- A current of 50 mA flows through a resistor of $1.5 \text{ k}\Omega$. What is the voltage across the resistor
(a) 240 V. (b) 100 V. (c) 75 V. (d) 50 V.
- Resistors of 100Ω and 150Ω are connected in parallel, find effective resistance
(a) 250Ω (b) 150Ω (c) 100Ω (d) 60Ω
- Diode bridge is used to
(a) convert AC to DC (b) Convert DC to AC. (c) increase voltage. (d) increase current.

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12. 'Simplex' is called
 (a) wire communication.
 (c) one-way communication.
 (b) wireless communication.
 ✓(d) two-way communication.
13. 20 dB voltage gain is an increased by
 (a) 20.
 (b) 15.
 ✓(c) 10.
 (d) 5.
14. The circuit shown in figure is a
 ✓(a) low-pass filter.
 (b) high-pass filter.
 (c) simple DC circuit.
 (d) simple AC circuit.
15. Generally the value of a component increases as the
 (a) temperature increases.
 (c) temperature being constant.
 (b) temperature decreases.
 ✓(d) none of these.
16. The frequency above 1 GHz is generally referred to as
 (a) high frequency.
 (c) ultra high frequency.
 (b) very high frequency.
 ✓(d) microwave.
17. An electric field associated with the transmitted signal is due to
 ✓(a) voltage change.
 (b) current change.
 (c) frequency change.
 (d) none of these.
18. The value of a resistor is 120 Ω , the corresponding colour codes will be
 (a) brown, red, brown.
 ✓(c) brown, red, black.
 (b) brown, red, red.
 (d) black, red, brown.
19. The lowest layer is in the ionosphere
 ✓(a) D.
 (b) F₁.
 (c) F₂.
 (d) E.
20. A 2A current carrying coil has a resistance of 0.5 Ω , power dissipated in it is
 (a) 20 W.
 ✓(b) 2 W.
 (c) 0.5 W.
 (d) 0.25 W.
21. Generally dummy loads are made by
 ✓(a) non-reactive resistors.
 (b) reactive resistor.
 (c) copper.
 (d) clay.
22. A varactor diode acts like a
 (a) variable inductor.
 (b) variable resistor.
 ✓(c) variable capacitor.
 (d) variable regulator.
23. In the following diagram, which represents the diode in a conducting condition.
 (a) 
 (b) 
 (c) 
 ✓(d) 
24. As the frequency rises, the reactance of an inductor
 (a) stays constant
 (b) decreases.
 ✓(c) increases.
 (d) does none of these.
25. Two 10 k Ω resistors are connected in parallel across a 5V DC supply. The total current taken is
 (a) 50 μ A.
 ✓(b) 0.5 mA.
 (c) 1 mA.
 (d) 1 A.
26. What is the effective capacitance between A and B shown in figure ?
 (a) 2 nF
 ✓(b) 12 nF
 (c) 22 nF
 (d) 48 nF



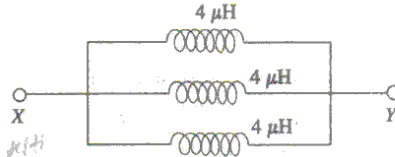
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27. What is the effective inductance between X and Y shown in figure?

- (a) $2 \mu\text{H}$
(c) $12 \mu\text{H}$

- (b) $4 \mu\text{H}$
(d) $16 \mu\text{H}$

No answer available = 4/3 μH



28. In the equation $V = f\lambda$, λ denotes

- (a) velocity. (b) frequency. ☒ (c) wave length. (d) time.

29. Ohm's law^{*} says

- (a) $R = \frac{V}{I}$. (b) $I = \frac{V}{R}$. (c) $V = IR$ ☒ (d) all the above are correct.

30. LED is a

- (a) transistor. ☒ (b) diode. (c) capacitor. (d) inductor.

31. The minimum impedance is given in a RLC circuit at

- (a) high voltage. ☒ (b) resonance. (c) high current. (d) high frequency.

32. Zener diodes are used in

- (a) ☒ power supplies. (b) modulator. (c) demodulator. (d) low-pass filter.

33. SWR of a perfectly matched system

- (a) ☒ 1 to 1. (b) 1 to 2. (c) 2 to 1. (d) none of these.

34. Copper and aluminium are the most widely used to make

- (a) diodes. (b) insulators. (c) transistors. ☒ (d) conductors.

35. The velocity of radio waves in free space is

- (a) ☒ increasing with frequency. (b) decreasing with frequency.
(c) ☒ constant. (d) none of these.

36. The energy stored at 0.5 H inductor, when 5A current flowing through it.

- (a) 0.1 W. (b) 6.25 W. (c) 10 W. (d) 12.5 W.

37. The ability of a receiver to pick up weak signals is

- (a) ☒ selectivity. ☒ (b) sensitivity. (c) stability. (d) screening.

38. The wave length of a signal is 3 m, its frequency at free space is

- (a) 50 Hz. (b) 50 MHz. (c) 100 Hz. ☒ (d) 100 MHz.

39. For a constant dc voltage capacitor acts as a

- (a) ☒ open circuit. (b) short circuit. (c) diode. (d) transistor.

40. A resistor dissipates 2 W at 10 V, value of the resistor is

- (a) 100 Ω . ☒ (b) 50 Ω . (c) 25 Ω . (d) 10 Ω .

41. The terminals of a Field Effect Transistor (FET) are

- (a) Base, Collector, Emitter ☒ (b) Gate, Drain, Source
(c) Base, Collector, Source (d) Gate, Drain, Emitter.

42. Unijunction transistor is known as

- (a) ☒ Bipolar Transistor. (b) Thyristor.
(c) Field Effect Transistor. (d) none of these.

43. What emission mode describes SSB speech transmission?

- (a) ☒ J3E (b) F3E (c) A3E (d) F3F

44. What is the instrument used for testing insulation?

- (a) Voltmeter (b) Ammeter ☒ (c) Meggar (d) power meter.

45. What value of a resistor is required to drop 150 V when current flowing through it is 25 mA?

- (a) ☒ 6000 Ω (b) 600 Ω (c) 60 Ω (d) 6 Ω

46. A smoothing choke has an inductance of 0.2 H. Its reactance at a frequency of 100 Hz is approximately

- (a) 40 Ω ☒ (b) 125 Ω (c) 400 Ω (d) 1250 Ω

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47. A $\frac{\lambda}{2}$ dipole has a length of just under 7.5 m. It will be resonant at a frequency
(a) 30 MHz (b) 25 MHz (c) 20 MHz (d) 15 MHz
48. The dip meter is using for
(a) frequency measurement. (b) voltage measurement.
(c) current measurement. (d) none of these.
49. Frequency shift keying is used mostly in
(a) telegraphy. (b) voice telephone.
(c) wireless transmission. (d) wire transmission.
50. Volt/meter equals
(a) Newtons² / Coulomb. (b) Newtons · Coulomb.
(c) Newtons / Coulomb. (d) Newtons / Coulomb².

Answers for 2001

Licencing conditions.....

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

Basic Electronic

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