MAHARASHTRA STATE BOARD OF SKILL DEVELOPMENT EXAMINATION, MUMBAI

Examination–-July, 2020

Certificate Course in Licentiate in Electronics and Radio Servicing (L.E.R.S.)

[´É³É—3 iÉÉ°É]

(**BEòhÉ** MÉhÉ—100)

Ê|ÉÎx°É{É±É +É¡ò +ÉÊb+É +hb ®Êb+É <ÎC´É{É¨É] °ÉÐ´½Ë°ÉMÉ (ÊIÉ+®Ò-3)

MÉhÉ

1. (+) MÉÉ³É±É±ªÉÉ VÉÉMÉÉ ¦É®É (¡òCiÉ **{ÉÉSÉ**) :— 5

(1) EòÉ¨{ÉC] ÊbºEò´É® ºEòÈxÉMÉ Eò®hÉÉ®É ±ÉZÉ® ÊɤÉ¨É ½É ..... ¨É³É iÉªÉÉ® ½Éi ÉÉ.

(+) EòÉ{É® ËZÉEò (¤É) +ÉªÉxÉ °É{±ÉÉ<b

(Eò) +±ªÉÉ¨ÉÊxÉ+¨É MÉÊ±ÉªÉ¨É +°ÉxÉÉ<b (b) ¤ÉÉ®+¨É +ÉC°ÉÉ<b.

(2) ®Êb+É Eò¨ªÉÉxÉEò¶ÉxÉ Ê®É°É´½®¨ÉvÉÒ±É ..... bÉ ¤ÉEò ½É xÉÉ<VÉ Ê±ÉÉ¨É] ® °ÉÌEò]¨É³É]É³iÉÉ ªÉiÉÉ.

(+) Ê£òC´ÉxºÉÒ Êbº]É®¶ÉxÉ (¤É) +¨{±ÉÒ]¬b Êbº]É®¶ÉxÉ

(Eò) ¡òVÉ Êbº]É®¶ÉxÉ (b) ¨ÉMxÉÊ]Eò Êbº]É®¶ÉxÉ.

(3) ..... ¨ÉÉb¬±É¶ÉxÉ¨ÉvªÉ +¨{±ÉÒ]¬b ¤Én±ÉiÉ

(+) ¡òVÉ (¤É) FM (Eò) AM (b) RF.

(4) ½ÉªÉ Ê£òC´ÉxºÉÒ±ÉÉ EòÊ®ªÉ® +°É ¨½hÉiÉÉÉiÉ iÉ® Î´½bÒ+É ÊºÉMxÉ±É±ÉÉ ..... ÊºÉMxÉ±É +°É ¨½hÉiÉÉÉiÉ.

(+) ¨ÉxÉ (¤É) ®Êb+É Ê£òC´ÉxºÉÒ

(Eò) ¨ÉÉb¬±ÉÉ]MÉ (b) bÒ¨ÉÉb¬±ÉÉ]MÉ.

(5) |É{ÉÉMÉ¶ÉxÉ +É¡ò ®Êb+É ´É¤ÉSÉ |ÉEòÉ® °{É°É ´É´É, ºEòÉªÉ ´É´É;..... ´É´É +É½iÉ.

(+) °ÉÉ>ðb (¤É) OÉÉ>ðb (Eò) +¤É® (b) °É¡ò°É.

(6) ®Êb+É Ê®Ê°É´½®¨ÉvªÉ Ê°ÉMxÉ±É Êb]C¶ÉxÉ Eò®hªÉÉ°ÉÉ`Ò..... bÉªÉÉbSÉÉ ={ÉªÉÉMÉ Eò®iÉÉiÉ.

(+) 1N4007 (¤É) 1N414 (Eò) 1N34 (b) DA79.

(¤É) **SÉEò** EòÒ **¤É®É¤É®** iÉ °ÉÉMÉÉ (EòÉhÉiÉ½Ò **{ÉÉSÉ**) :— 5

(1)]ÉxºÉ¡òÉ¨É®¨ÉSÉ EòÉ+® ½ ÊºÉÉ±ÉEòÉxÉ º]Ò±É{ÉÉºÉxÉ ¤ÉxÉÉ´ÉiÉÉiÉ.

(2) D.V.D. {±É+®¨ÉvªÉ ÊbºEò ¨ÉÉ]® 3.5 DC ´½É±]VÉ´É® EòÉªÉ Eò®iÉ.

(3) AM ®Êb+É Ê®Ê°É´½®¨ÉvÉÒ±É IF Ê£òC´ÉxºÉÒ 455 Hz +°ÉiÉ.

(4) EòÉ¨{ÉC] ÊbºEò (C.D.) ½ º]®Ò+É¡òÉÉxÉEò ®EòÉÍbMÉSÉ SÉÉMÉ±É =nÉ½®hÉ +É½.

(5) BC 547 ½É NPN |ÉEòÉ®SÉÉ]ÉÎxZÉº]® +É½.

(6) iÉ]±É±ªÉÉ EòÉ<±É¨ÉvªÉ +ÊvÉEò ®ÊVÉº]xºÉ xÉºÉiÉÉ.

(Eò) ±ÉÉMÉ ¡òÉ¨É Ê±É½É (EòÉhÉiÉ½Ò **{ÉÉSÉ**) :— 5

(1) AM (2) CD (3) AGC

(4) IFT (5) PTC (6) EMF.

[=±É]xÉ {É½É

(b) VÉÉb¬É ±ÉÉ´ÉÉ :— 5

‘ + ’ MÉ]¦	‘ ¤É ’¦ MÉ]¦
(1)]ÉxºÉ¨Éì]®	(+) bÌÊVÉ]±É º]É®VÉ
(2) ºÉì. bÌ. {±ÉªÉ®	(¤É) TBA 810
(3) +¨{±Éì¡ÌÉªÉ®	(Eì) ¨ÉÉªÉGÌÉ¡ÌÉxÉ]¦ +x]xÉÉ
(4) B¡ì. B¨É.	(b) +º]¤É±É ¨É±]Ì´½ÉªÉ¥É]®
(5) ®ËxÉMÉ ±ÉÉ<]¦	(<) 107 MHz
	(¡ì) +x]xÉÉ]¦ ±ÉÉ>ðbÎºÉEì®.

2. {É fÌ±É{ÉEìÌ EÌÉhÉiªÉÉ½Ì **nÉxÉ** |É¶xÉÉSÉÌ =kÉ® Ê±É½É :— 16

(+) +ÉÊºÉ±ÉÉºEÌÉ{ÉSÉÉ ={ÉªÉÉMÉ Ê±É½É ´É ¨Éx]xÉxºÉEÌÉ®iÉÉ CRO SÉ ¨É½k´É º{É¹]¦ Eì®É.

(¤É) AM]ÉxºÉ¨Éì]®SÉÌ ¤±ÉÉEì bÉªÉÌÉÉ¨É EÌÉ fÉ.

(Eì) CD {±É+®¨ÉvªÉ ´ÉÉ{É®±ªÉÉ MÉ±É±ªÉÉ ºÉºÉ®SÉ |ÉEÌÉ® º{É¹]¦ Eì®É.

(b)]{É ®EÌÉÍbMÉ ÊºÉºº]Ì¨ÉSÉÉ ¤±ÉÉEì bÉªÉÌÉÉ¨É EÌÉ fxÉ ¨ÉÉ½iÉÌ Ê±É½É.

3. EÌÉhÉiªÉÉ½Ì **nÉxÉ** |É¶xÉÉSÉÌ =kÉ® Ê±É½É :— 16

(+) ÊºÉMÉ±É]¬xb +¨{±Éì¡ÌÉªÉ®SÉÉ ºÉÌEì]¦ bÉªÉÌÉÉ¨É EÌÉ fxÉ iªÉÉSÉÌ EÌÉªÉ {É riÉì º{É¹]¦ Eì®É.

(¤É) ¡ÌÉªÉ® +±ÉÉ¨É ÊºÉÎº]¨ÉSÉÉ ºÉÌEì]¦ bÉªÉÌÉÉ¨É EÌÉ fxÉ º{É¹]¦ Eì®É.

(Eì) ¨É±]Ì´ÉÌ]®SÉÉ ={ÉªÉÉMÉ Ê±É½xÉ +xÉÉ±ÉÉMÉ ´É bÌÊVÉ]±É ¨É±]Ì´ÉÌ]®¨ÉvÉÌ±É ¡ì®Eì º{É¹]¦ E®É.

(b) º{É® ½]ÉbÉ<xÉ Ê®ºÉ´½®¨ÉvÉÌ±É Ê¨ÉCº{É® º]VÉ¤Éq±É º{É¹]ÌE®hÉ tÉ.

4. EÌÉhÉiªÉÉ½Ì **nÉxÉ** |É¶xÉÉSÉÌ =kÉ® Ê±É½É :— 16

(+) IÉÉbCªÉÉiÉ Ê±É½É :— Êb±Éb B. VÉÌ. ºÉì.

(¤É) JÉÉ±ÉÌ±É ={ÉEì®hÉÉSÉÉ ´ÉÉ{É® º{É¹]¦ Eì®É :—

(1) B. B¨É. VÉxÉ®]®,

(2) Ê£ìC´ÉxºÉÌ EÌÉ>ð]®.

(Eì) FM ®Êb+É Ê®ÊºÉ´½®¨ÉvªÉ Ê±É¨É]® EÌÉ ´ÉÉ{É®iÉÉiÉ ?

(b) BÊ®ªÉ±É bÉªÉ{ÉÉ±É ´É ±É{É +x]xÉÉ¤Éq±É Ê±É½É.

5. Ê]{ÉÉ Ê±É½É (EÌÉhÉiÉ½Ì **SÉÉ®**) :— 16

(+) MP3 {±É+®.

(¤É) ÊºÉMxÉ±É VÉxÉ®]®

(Eì)]¨¦ÉSÉ® Eì]É±É ºÉÌEì]¦

(b) ®ËxÉMÉ ±ÉÉ<Ê]MÉ

(<) º¨ÉÉEì Êb]C]®.

6. JÉÉ±ÉÌ±É{ÉEìÌ EÌÉhÉiªÉÉ½Ì **nÉxÉ** |É¶xÉÉSÉÌ ºÉÉ´ÉºiÉ® =kÉ® Ê±É½É :— 16

(+) ´½®C]® bÉªÉÉb ¤ÉºÉ]¬ËxÉMÉ ºÉÌEì]¦ bÉªÉÌÉÉ¨É EÌÉ fxÉ ´ÉhÉxÉ Eì®É.

(¤É) LDR º]Ì]¦ ±ÉÉ<]SÉÉ ºÉÌEì]¦ bÉªÉÌÉÉ¨É EÌÉ fxÉ º{É¹]¦ Eì®É.

(Eì) रेडिओ ट्रान्समीटरमध्ये वापरल्या जाणाऱ्या दोन प्रकारच्या ट्रान्समिशन लाईन्सबद्दल थोडक्यात ¨ÉÉ½iÉÌ Ê±É½É.

(b) C. D. {±É+®SÉÉ ¤±ÉÉEì bÉªÉÌÉÉ¨É EÌÉ fÉ ´É º{É¹]¦ Eì®É.

(ENGLISH)

[TIME ALLOWED—3 HOURS]

(MARKS—100)

PRINCIPLE OF AUDIO AND RADIO EQUIPMENT SERVICING (THEORY-III)

Marks

1. (*a*) Fill in the blanks (any *five*) :— 5

(*i*) To generate leaser Beam for scanning on compact disc is due to .....

(*a*) Copper zink (*b*) Iron supplied

(*c*) Aluminium galium arsenaid (*d*) Beriam oxide.

(*ii*) In radio communication receiver ..... drawback is avoid by noise limiter circuit.

(*a*) Frequency distortion, (*b*) Amplitude distortion,

(*c*) Phase distortion, (*d*) Magnetic distortion.

(*iii*) In ..... modulation Amplitude changes.

(*a*) Phase (*b*) PM (c) AM (*d*) RF.

(*iv*) High frequency is called as carrier then video signal is called as ..... signal.

(*a*) Main, (*b*) Radio frequency,

(c) Modulating, (*d*) Demodulating.

(*v*) The type of propogation of radio waves are Space wave, Sky wave and ..... wave.

(*a*) Sound (*b*) Ground (c) Amber (*d*) Surface.

(*vi*) The diode ..... is used to detect signal in Radio Receiver.

(*a*) IN4007 (*b*) IN4148 (*c*) IN34 (*d*) DA79.

(*b*) State *true* or *false* (any *five*) :— 5

(*i*) Core of transformer is made by Silicon Steel.

(*ii*) Disc motor in D.V.D. player is works on 3.5 V.D.C.

(*iii*) It frequency of AM Radio receiver is 455 KHz.

(*iv*) A Compact Disk (C.D.) is good example of stereophonic recording.

(*v*) BC 547 is a NPN transistor.

(*vi*) Breaked coil having not high resistance.

(*c*) State long form (any *five*) :— 5

(*i*) AM (*ii*) CD (*iii*) AGC

(*iv*) IFT (*v*) PTC (*vi*) EMF.

Marks

(*d*) Match the following pairs :— 5

'A' Group	**'B'** Group
(*i*) Transmitter	(*a*) Digital storage
(*ii*) C. D. player	(*b*) T. B. A. 810
(*iii*) Amplifier	(*c*) Microphone to antenna
(*iv*) F. M.	(*d*) Astable multivibrator
(*v*) Running light	(*e*) 107 MHz
	(*f*) Antenna to loudspeaker.

2. Answer the following (any *two*) :— 16

(*a*) Write various uses of an Oscilloscope. What is the role of CRO in maintenance ?

(*b*) Draw the block diagram of AM transmitter.

(*c*) Explain different type of sensor's used in a C. D. player.

(*d*) Draw block diagram of Tape Recorder and explain.

3. Attempt any *two* of the following :— 16

(*a*) Explain principle of operation of single tuned Amplifier.

(*b*) Draw circuit diagram of fire alarm and explain.

(*c*) Write the uses and explain the difference between Analog and Digital multimeter.

(*d*) Explain mixer stage of super heterodyne receiver.

4. Answer in brief (any *two*) :— 16

(*a*) Write note on delayed AGC

(*b*) What is use of following instruments.—

(*i*) AM / FM generator (*ii*) Frequency counter.

(*c*) Why limiter is used in FM Radio receiver ?

(*d*) Explain Areal dipole and loop antenna.

5. Write short notes on (any *four*) :— 16

(*a*) MP3 Player

(*b*) Signal generator

(c) Temperature Control Circuit

(*d*) Running lighting

(*e*) Smock detector.

6. Answer the following (any *two*) :— 16

(*a*) Draw and explain varactor diode base tunning circuit.

(*b*) Draw circuit diagram of LDR street light give its application.

(*c*) Discribe two types of transmission line commanly used with Radio transmitter.

(*d*) Draw block diagram of C. D. player and explain in short.