

MAHARASHTRA STATE BOARD OF SKILL DEVELOPMENT EXAMINATION, MUMBAI

Examination--July, 2020

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

[**ἔ**φύ—3 iέέ^οέ]

(BEÚHÉ ~~MÖÉ~~—100)

$$\hat{E}\hat{H}x^0\hat{E}(I+\hat{E} + \hat{E}_0 + \hat{E}b + \hat{E}a + hb) \div \hat{R}\hat{H}b + \hat{E}a < \hat{I}\hat{C} \hat{E}\hat{E} \hat{E}a \tilde{o} \circ \hat{H}^{1/p}\hat{P}\hat{M} (\hat{E}\hat{E} + \hat{R}\hat{O})$$

NÉE

5

1. (+) MEE³ ~~je~~^{la}EE VEE^{ME} JE[®] (j^oCiE {E^{SE}):-

- [illegible]

- [illegible]

- [illegible]

- (+) $\{E\}C \{E\}^{\circ} \{E\}B^{\circ} \} \{E\}^{\circ} \{E\}X\{E\}$ (4) $+i\{E\}^{\circ} \{E\}B^{\circ} \} \{E\}^{\circ} \{E\}X\{E\}$
 (E0) $\{E\}^{\circ} \{E\}B^{\circ} \} \{E\}^{\circ} \{E\}X\{E\}$ (b) $\{E\}^{\circ} \{E\}B^{\circ} \} \{E\}^{\circ} \{E\}X\{E\}$.

- (3) $\frac{E_0}{\mu_B} = \frac{\mu_B}{k_B T} [x_F - x_V] \left[\frac{1}{T} + i(\pm E_0) \right] \frac{1}{\mu_B} = f_{FM} \mp f_{AM}$
 (+) $i \Delta E$ (F) FM (E) AM (b) RF.

- [illegible]

- (+) "Erf
(E0) "ffb ÷ qff] ME
- (f) "ab ÷ fa ff cC Erf f0
(b) bð:ffb ÷ qff] ME.

- (5) $\left| \begin{array}{ccc} \text{Ed}^a & \text{Ed}^a & \text{Ed}^a \\ \text{Ed}^a & \text{Ed}^a & \text{Ed}^a \\ \text{Ed}^a & \text{Ed}^a & \text{Ed}^a \end{array} \right| \neq 0$

- $$(+) \text{ } ^{\circ}\text{E} > \text{No} \div \quad (E) \text{ } ^{\circ}\text{E} > \text{No} \div \quad (E) + \text{A}^{\circ}\text{u} \quad (b) \text{ } ^{\circ}\text{E} \text{ } ^{\circ}\text{E}.$$

- (6) $\text{aff}(\text{aff}(f_1 \oplus f_2)/\text{aff}(f_1)) = \text{aff}(f_2)$.

- (+) 1N4007 (E) 1N414 (E0) 1N34 (b) DA79U

(ੴ) ਸਤਿਨਾਮੁ ਕਰਤਾ ਹਰਿ ॥ ਨਾਨਕ ॥ (ੴ ਸਤਿਨਾਮੁ ਕਰਤਾ ਹਰਿ ॥ ਨਾਨਕ ॥)

5

- (1) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840.

- (2) D.V.D. {±Ea[®]uf^aEa Eb^oEo "Ea Ou 3.5 DC 1/2a 10E[®]u Ed^{af}Eo[®]uEa

- (3) $AM \stackrel{R}{\rightarrow} B \vdash A \stackrel{R}{\rightarrow} B \vdash \frac{1}{2} \mu \text{Ev} E \vdash \vdash \vdash IF \vdash E \vdash C \vdash A \stackrel{R}{\rightarrow} E \vdash 455 \text{ Hz} + \vdash E \vdash A$

- $$(4) \quad E_{\mathbb{H}}[E_C] \circ E_B \circ E_0 \text{ (C.D.) } \frac{1}{2} \alpha^0 \left[\frac{1}{2} \alpha^0 + f_a \right] E_{\mathbb{H}} E_0 \circ E_{\mathbb{H}} \left[\frac{1}{2} \alpha^0 + f_a \right] E_{\mathbb{H}} E_0 = \frac{1}{2} \alpha^0 E_{\mathbb{H}} E_0 + E_{\mathbb{H}} \left[\frac{1}{2} \alpha^0 + f_a \right] E_{\mathbb{H}} E_0$$

- (5) BC 547 1/2 NPN |ÉÉÉ®ÉÉ]xZÉ°]ú +É1/2

- (6) $i\dot{E} \tilde{\alpha} E^{\alpha} E = E \dot{E} E^{\alpha} E + E \dot{E} E^0 \otimes iV^0] \tilde{\alpha}^{\alpha} x E^{\alpha} i E^{\alpha}$

$$(E_0) \pm E_{\text{eff}}; dE/dx = E_0 \ln(E/E_0) / (E_0 - E) : -$$

5

- (1) AM (2) CD (3) AGC
(4) IFT (5) PTC (6) EMF.

(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 laser 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.

[Turn over

- (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
- Write various uses of an Oscilloscope. What is the role of CRO in maintenance ?
 - Draw the block diagram of AM transmitter.
 - Explain different type of sensor's used in a C. D. player.
 - Draw block diagram of Tape Recorder and explain.
3. Attempt any *two* of the following :— 16
- Explain principle of operation of single tuned Amplifier.
 - Draw circuit diagram of fire alarm and explain.
 - Write the uses and explain the difference between Analog and Digital multimeter.
 - Explain mixer stage of super heterodyne receiver.
4. Answer in brief (any *two*) :— 16
- Write note on delayed AGC
 - What is use of following instruments.—

(i) AM / FM generator	(ii) Frequency counter.
-----------------------	-------------------------
 - Why limiter is used in FM Radio receiver ?
 - Explain Areal dipole and loop antenna.
5. Write short notes on (any *four*) :— 16
- MP3 Player
 - Signal generator
 - Temperature Control Circuit
 - Running lighting
 - Smock detector.
6. Answer the following (any *two*) :— 16
- Draw and explain varactor diode base tuning circuit.
 - Draw circuit diagram of LDR street light give its application.
 - Discribe two types of transmission line commanly used with Radio transmitter.
 - Draw block diagram of C. D. player and explain in short.
-