

MAHARASHTRA STATE BOARD OF VOCATIONAL EXAMINATIONS, MUMBAI

Examination, July 2014

CERTIFICATE COURSE IN REPAIRING AND SERVICING RADIO AND LCD/LED T.V.

[ἔργ—3 iḗ°é]

(BEÚÉ NÖÉ—100)

$$E_{\text{eff}}^{\text{eff}} < E_{\text{eff}}^{\text{eff}} + E_{\text{eff}}^{\text{eff}} + E_{\text{eff}}^{\text{eff}} (E_{\text{eff}}^{\text{eff}} - 1)$$
NÍBÉ

- [illegible]

2. JEE+É0+É{ÉÉ0 É0ÉhÉÉ0 nÉÉ °ÉÉ0:ÉÉ :—

16

(+) b0¹/2b0 {±E+®SEE ±EEEò bE^aEÓEE'E EeEfME i^aEESEä EHÉRE Eò®.

(c) "EE"EGa dEESa |EE d® ū Ê+Ê½ Ë Ê EdhEi aEE½) BE dSÊa ÊhEÊÊ Êo®.

(Eò) È°ÉÑÉ± È°] ÑÉ +É®Ù È°È. +Î°{±È; ð²É®Èä È°Èä] ò ÈðÉÑÉ È°ÉÈÈ È°ÈÈÈ È°ÈÈÈ.

3. $J_{E+E}^E J_{E+E}^E = k_E^{\otimes 2} E^{1/2} (E^{\otimes 2})^{1/2} n_E$:—

16


(+) $\text{YbO}^{\text{®}} \text{C}] \text{O} \text{d}^{\text{®}} \text{E}^{\text{®}} \text{S}^{\text{®}} \text{E}^{\text{®}} + \text{E}^{\text{®}} \text{O}^{\text{®}} \text{E}^{\text{®}} \text{E}^{\text{®}} \text{E}^{\text{®}}$

(f) $\frac{d}{dt} \left(\frac{1}{2} m v^2 \right) = \frac{1}{2} m \frac{d}{dt} (v^2) = m v \frac{dv}{dt} = m v a$

(Eò) Eò(É°É)®SÉa ÉMÔEò®MÉ Ê±É½ð É EòMÉ¹aÉ½ð BEdSÉa ÉhÉÉ Eò®ú.

4. $\phi_{\text{eff}}^{\text{OIE}} = k_{\text{eff}}^{\text{OIE}} \cdot E_{\pm}^{1/2}$ ($E_{\text{eff}}^{\text{OIE}}$) n_{eff} :—

16

(+) B^oE^o oE_{±EE}^aES^o b^oE^o oE_{±EE}^aE^o  iE^oEx^oE^o E^o[®]u.

(p) [bVÉ]ǎÉ ½ǎ] "É] ǒÉÉ ±ÉÉÈ bÉ^aÉÉÉ"É EǎfÉ ÉhÉÉ Eò®.

(Eò) 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th 13th 14th 15th 16th 17th 18th 19th 20th 21st 22nd 23rd 24th 25th 26th 27th 28th 29th 30th 31st 32nd 33rd 34th 35th 36th 37th 38th 39th 40th 41st 42nd 43rd 44th 45th 46th 47th 48th 49th 50th 51st 52nd 53rd 54th 55th 56th 57th 58th 59th 60th 61st 62nd 63rd 64th 65th 66th 67th 68th 69th 70th 71st 72nd 73rd 74th 75th 76th 77th 78th 79th 80th 81st 82nd 83rd 84th 85th 86th 87th 88th 89th 90th 91st 92nd 93rd 94th 95th 96th 97th 98th 99th 100th 101st 102nd 103rd 104th 105th 106th 107th 108th 109th 110th 111st 112nd 113rd 114th 115th 116th 117th 118th 119th 120th 121st 122nd 123rd 124th 125th 126th 127th 128th 129th 130th 131st 132nd 133rd 134th 135th 136th 137th 138th 139th 140th 141st 142nd 143rd 144th 145th 146th 147th 148th 149th 150th 151st 152nd 153rd 154th 155th 156th 157th 158th 159th 160th 161st 162nd 163rd 164th 165th 166th 167th 168th 169th 170th 171st 172nd 173rd 174th 175th 176th 177th 178th 179th 180th 181st 182nd 183rd 184th 185th 186th 187th 188th 189th 190th 191st 192nd 193rd 194th 195th 196th 197th 198th 199th 200th 201st 202nd 203rd 204th 205th 206th 207th 208th 209th 210th 211st 212nd 213rd 214th 215th 216th 217th 218th 219th 220th 221st 222nd 223rd 224th 225th 226th 227th 228th 229th 230th 231st 232nd 233rd 234th 235th 236th 237th 238th 239th 240th 241st 242nd 243rd 244th 245th 246th 247th 248th 249th 250th 251st 252nd 253rd 254th 255th 256th 257th 258th 259th 260th 261st 262nd 263rd 264th 265th 266th 267th 268th 269th 270th 271st 272nd 273rd 274th 275th 276th 277th 278th 279th 280th 281st 282nd 283rd 284th 285th 286th 287th 288th 289th 290th 291st 292nd 293rd 294th 295th 296th 297th 298th 299th 300th 301st 302nd 303rd 304th 305th 306th 307th 308th 309th 310th 311st 312nd 313rd 314th 315th 316th 317th 318th 319th 320th 321st 322nd 323rd 324th 325th 326th 327th 328th 329th 330th 331st 332nd 333rd 334th 335th 336th 337th 338th 339th 340th 341st 342nd 343rd 344th 345th 346th 347th 348th 349th 350th 351st 352nd 353rd 354th 355th 356th 357th 358th 359th 360th 361st 362nd 363rd 364th 365th 366th 367th 368th 369th 370th 371st 372nd 373rd 374th 375th 376th 377th 378th 379th 380th 381st 382nd

5. $\int_{-\infty}^{\infty} \delta(x) dx = 1$ (Euler's integral) **SEE®** :—

16

(+) {ÉÒ. B. [°[°]ØÉ

$$(d) \{E_i E_j E_k\} + \hat{I} \{ \pm E_i; \partial E^a E_j \}$$

(Eò) |É'ÉÉ[ā ō

$$(b) \quad \pm \hat{0} b \div + \hat{0} \hat{0} b \div \hat{0} \hat{a} \hat{0}$$

(\leq) ZÉOXÉ® ú bÉaÉÉb;

6. EòéñÉíÉzÞ ññÉ |É|xÉ °ÉÉð:ÉE :-

16

(+) +[®]u °f0. 1 B±E. °f0. 1; 0±]®u °fE0] 6E bE°f0E°E Edf 1 °f1] 0 E0®.

(4) $Z(\mathcal{O}_K) \cong \mathbb{Z}^r \oplus \mathbb{Z}/m_1\mathbb{Z} \oplus \cdots \oplus \mathbb{Z}/m_s\mathbb{Z}$, where r is the rank of the free part, and m_1, \dots, m_s are the orders of the torsion elements.

(E0) $\gamma_{\pm} \in \mathbb{R}; \alpha_1^{\pm} \in \mathbb{R}$ $\gamma_{\pm}^{(0)} = b_{\pm} \neq 0$; $\frac{1}{2} m_{\pm}^2 = b_{\pm}^2 \epsilon_0 \epsilon_{\pm}^2 E$ $E \in F_0$ $E = O(\Gamma) \cap E_0^{\otimes 2}$.

(ENGLISH)

[TIME ALLOWED — 3 HOURS]

(MARKS — 100)

BASIC ELECTRONICS AND ASSEMBLY TECHNIQUE (THEORY-I)**Marks**

1. (a) Fill in the blanks (any *ten*) :— 10
- (i), andare three particles of an atom.
 - (ii) Capacitors are connected in to increase effective capacitance.
 - (iii) is the measuring unit of inductance.
 - (iv) The most heavily doped region in the transistor is
 - (v) In 'P' type material would be majority carriers.
 - (vi) The CE configuration is used to provide type of gain.
 - (vii) The resistance of 200 W and 200 V lamp is
 - (viii) The ohm is the unit of
 - (ix) A direct coupled amplifier does not have any capacitor.
 - (x) Minority charge carriers have polarity from majority carriers.
 - (xi) Barrier potential for germanium diode is volts.
- (b) State *true* and *false* and correct if false (any *ten*) :— 10
- (i) The zener diode is operated with forward bias.
 - (ii) Both microphone and loudspeakers are the examples of electromagnetic transducer.
 - (iii) Sound waves cannot be amplified by transistors, but audio signals can be.
 - (iv) LED's are sensitive to mechanical vibrations.
 - (v) For 50 Hz input the ripple frequency in a bridge rectifier will be 100 Hz.
 - (vi) Heat sink is used to radiate heat away from the collector junction.
 - (vii) The negative feedback in an amplifier increases the stability of its voltage gain.
 - (viii) A capacitor is charged when one of its plates has more electrons than the other plate.
 - (ix) In a transformer if a voltage is stepped up then current will be stepped down.
 - (x) When resistors are connected in series, the sum of the current in them is the current drawn from the cell.
 - (xi) An 'N' type semi-conductor has free electrons, while 'P' type has holes.

[Turn over]

2. Answer any *two* of the following :— 16
- (a) Draw the block diagram of DVD player and explain its working.
 - (b) Name types of microphone. Explain any one type with construction details.
 - (c) Draw circuit of single stage RC amplifier and explain.
3. Answer following questions (any *two*) :— 16
- (a) Explain working of bridge rectifier with neat diagram.
 - (b) What is regulated power supply ? What is it's need ?
 - (c) Explain classification of capacitor. Explain any one type with construction details.
4. Answer in detail (any *two*) :— 16
- (a) Compare AC with DC.
 - (b) Draw and explain block diagram DVM.
 - (c) Explain classification of transformer.
5. Write short notes (any *four*) :— 16
- (a) P-A System.
 - (b) Power Amplifier.
 - (c) Thermostat.
 - (d) Lead Acid Cell.
 - (e) Zener Diode.
6. Attempt of the following questions (any *two*) :— 16
- (a) Draw and explain R.C. and L.C. filter circuit.
 - (b) Draw and explain zener diode regulator circuit.
 - (c) Draw and explain with neat circuit telephone as a transducer.
-