



2. JEE+EO+E(EE) E d h i e 20 nñe |É|xÉ °ÉÉb:ÉE :-

[illegible]

(d)  $\circ [1E0] \circ b^{\text{fa}} E0EE \dots E^{\circ} EE \frac{1}{2} E$  ;  $\bar{0} + E$   $EaE^{\text{R}} C ] \bar{0} ; d^{\text{fa}} E^{\text{R}} E0 \dots EEE \frac{1}{2} E0$   $E + E \frac{1}{2} E$ .

(Eò) B°ÈÒ mÈÒ jävÉ <B€¶É×É “ÉÉª®ÖÈÒ Eð<sup>a</sup>EÇrüÈÈ Ì¹É<sup>a</sup>EÒ “ÉÉ½ÞÈÒ È+É½Þ.

3. JEE+EO+E(E=0) E d h e i e 2 0 n d e | e q x e ° e e b : e e :-

(+) SÉ<sup>ŋ</sup>E<sup>+</sup>aEÉ <x°EÉfā<sup>®</sup>ŌEä MÖEPÉ·ÉÇ E<sup>+</sup>E½f. ÈSExEO ÉEIEOÉ<sup>®</sup>ü ] ÖE E<sup>+</sup>E½f.

$$(f) \quad \text{E}(\text{h}^{\text{a}}\text{E}^{\text{b}}) \text{SEE}^{\text{u}} \text{E}^{\text{t}} \text{OE} \text{BC}^{\circ} \text{E}^{\text{a}} \text{E}^{\text{e}} \text{WE} + \text{E}(\text{b}^{\text{a}}\text{E}^{\circ} \text{E}^{\text{b}}) \text{EEE}^{\text{b}} \text{EO} \text{E}^{\text{a}} \text{E}^{\text{b}}.$$
$$(E_0) + \frac{1}{2} p(E_0) \hat{x}(E_0)^{\circ} \{E^1\} \tilde{o} E_0^{\otimes u}.$$

4. JEE+EO+E(E=0) EdhEiE2) nññ |É¶É °ÉÉb:É :-

(+) +ÍÍÉÑÉ "½pÉVÉä Eñ<sup>a</sup>E ? {ÉÉ<É +ÍÍÉÑÉ +ÉEñÉÖ°E½p °{É¹]õ Eö®Ü.

(f)  $\int_{\Omega} |\nabla u|^2 dx = \int_{\Omega} |\nabla v|^2 dx$  ?  $\int_{\Omega} |\nabla u|^2 dx = \int_{\Omega} |\nabla v|^2 dx$  if and only if  $u = v$ .

[illegible]

5. JEE+EO+E{EE=0 E d h e i e 2) nñE |ÉqxE °ÉE b :É :-

(+) mēō jāvē jākōf; dī ē sātē Ed hāī a tēvō nūfē Eoxē Exēsēō + ē dī ēō ē vō ēēvō jō ē+ē vō.

(㉔) EñB€]®ú +ÉêHé <°EÖEā®ú "ÉvE0+E jò®Eò °{E¹]õ Eò®ú.

$$(E_0) \leq \pm \frac{1}{2} \left( \frac{1}{2} \right) E_0 = \frac{1}{4} E_0 \quad \text{for } \frac{1}{2} \leq \frac{1}{2} \leq \frac{1}{2} = \frac{1}{2} \quad \text{for } \frac{1}{2} \leq \frac{1}{2} \leq \frac{1}{2} = \frac{1}{2}.$$

6.  $E_{\text{eff}} = E \pm E_{\text{eff}}/2$  (E<sub>eff</sub> = E<sub>eff</sub>/2) **SEE®** :-

(+) B''E°E0E0

(၁၆) “[[<sup>a</sup>GòäEò]] စံ

(Eò) |É|É"ÉÉÉSÉE®ú

(b)  $\langle x^0 \rangle \approx 0$  ;  $\langle x^0 \rangle \approx 0$

( $<$ ) }<sup>a</sup>ÉVÉ.

**(ENGLISH)**

[ TIME ALLOWED—3 HOURS ]

(MARKS—100)

**BASIC ELECTRICAL AND ELECTRONICS (THEORY-I)****Marks**

1. (a) Fill in the blanks :—

5

- (i) ..... is the unit of electric power.  
 (a) Ampere (b) Volt  
 (c) Watt (d) Ohm.
- (ii) The unit of ..... is ampere.  
 (a) power (b) current  
 (c) resistance (d) conductance.
- (iii) If  $V = 100$  Volt and  $I = 10$  amp. then  $R =$  ..... ohm  
 (a) 5 (b) 10  
 (c) 15 (d) 20.
- (iv) AC main supply in India has the frequency of .....Hz.  
 (a) 100 (b) 60  
 (c) 50 (d) 40.
- (v) The size of hammer is specified by its .....  
 (a) length of pein (b) diameter of face  
 (c) weight of hammer (d) height of the head.

(b) Write *true* or *false* :—

5

- (i) Ohm is the unit of resistance.  
 (ii) If  $V = 200$  Volt and  $R = 25$  ohm, then  $I = 10$  amp.  
 (iii) In transformer core is made from copper.  
 (iv) Ammeter is always connected in parallel with circuit.  
 (v) Silver is a good conductor of electricity.

(c) State full form :—

5

- (i) KW (ii) MCB (iii) PT  
 (iv) SWG (v) MMF.

(d) Match the pair :—

5

'A' Group

'B' Group

- (i) Lamp filament (a) Meggar  
 (ii) Current (b) Switch  
 (iii) Insulation resistance (c) Voltmeter  
 (iv) Voltage (d) Ammeter  
 (v) Controlling accessories. (e) Tungsten.

2. Attempt any *two* of the following :— 16
- (a) What do you mean by semi conductor ? Explain it's atomic structure.
  - (b) Explain with circuit diagram full wave rectifier.
  - (c) Explain the working principle of AC 3 phase induction motor.
3. Attempt any *two* of the following :— 16
- (a) State the properties of good insulator. Write a short note on porcelain
  - (b) Explain with neat sketch any four electrical accessories.
  - (c) State and explain Ohm's law.
4. Attempt any *two* of the following :— 16
- (a) What is mean by an earthing ? Explain the pipeearthing with neat sketch.
  - (b) What is mean by a transformer ? Explain the working and constructional details of transformer.
  - (c) Distinguish between series circuit and parallel circuit.
5. Attempt any *two* of the following :— 16
- (a) Explain with circuit diagram any two method of connections of three phase transformer.
  - (b) Distinguish between conductor and insulator.
  - (c) Explain the effects of electric current with examples.
6. Write a short notes. (any *four*) :— 16
- (a) MCB
  - (b) Micrometer
  - (c) Basic first aid
  - (d) Instruments transformer
  - (e) Fuse.
-