



C14-EE-501

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BOARD DIPLOMA EXAMINATION, (C-14)  
MARCH/APRIL—2017  
DEEE—FIFTH SEMESTER EXAMINATION

ELECTRICAL UTILIZATION

Time : 3 hours ]

[ Total Marks : 80

PART—A

3×10=30

- Instructions** : (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define the following terms regarding electric lighting :  $1\frac{1}{2}+1\frac{1}{2}=3$ 
  - (a) Luminous flux
  - (b) Candlepower
2. State any six requirements of good lighting. 3
3. Determine the distance for a 30-candlepower lamp from a normally placed screen in order that the illumination shall be  
(a) 5 lux, (b) 10 lux and (c) 15 lux. 3
4. State any six advantages of electric heating. 3
5. State different methods of temperature control of resistance furnaces. 3

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6. List different <sup>\*</sup> types of electrodes used for welding. 3
7. Draw a neat block diagram of an Air-conditioner and name the parts. 3
8. List the various components of car stereo. 3
9. State the need of power saving devices. 3
10. List any six advantages of Compact Fluorescent (CF) lamps. 3

**PART—B**

10×5=50

**Instructions** : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. State and explain the laws of illumination with relevant sketches. 10
12. Two street lamps of 1000 candela and 800 candela are mounted 12.5 metres above road level and are spaced 25 metres apart. Find the illumination on the ground (a) just below the lamppost and (b) in between the lampposts. 10
13. (a) Explain direct resistance heating with a neat sketch. 5  
 (b) Explain indirect arc furnace with a neat sketch. 5
14. (a) Explain the principle of operation of coreless induction heating with a neat sketch. 7  
 (b) List any six industrial applications of dielectric heating. 3
15. (a) Explain the principle of butt welding with a neat sketch. 5  
 (b) Explain electronic circuit used for welding with a neat sketch. 5

- 16.** (a) Explain the principle of operation of welding transformer with a neat sketch. 5
- (b) Explain the principle of seam welding with a neat sketch. 5
- 17.** Draw a neat electric circuit diagram of a refrigerator and state the function of each component. 10
- 18.** (a) Explain the working of magnetic induction lamp with a neat sketch. 7
- (b) List any six advantages of remote operated power utility devices. 3

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