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C14–EE–501

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BOARD DIPLOMA EXAMINATION, (C–14)

JUNE—2019

DEEE—FIFTH SEMESTER EXAMINATION

ELECTRICAL UTILISATION

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 GLARE. How it can be minimised?

2. Define space height ratio and luminous intensity.

3. The candle power of a lamp placed normal to a working plane is 30 CP. Find the distance, if the illumination is 15 lux.

4. State the advantages of electric heating.

5. State the different types of materials used for heating elements.

6. State the different types of electrodes used for welding.

7. Write a short note on working of refrigerator.

8. What is the difference between refrigerator and air conditioner?

9. State the advantages of compact fluorescent lamps.

10. State the advantages of remote operated power utility devices.

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. *(a)* Explain about flood lighting in detail.

(b) State and explain Lambert's cosine law of illumination.

12. The luminous intensity of a lamp is 250 candela and is mounted at a hight of 5m from the centre of a circular area 4m diameter. Find the *(a)* maximum, *(b)* minimum and *(c)* average illumination. Find also the average illumination, if a reflector of 60% efficiency is used.

13. Explain the construction and opreation of core-type induction heating with neat sketch.

14. A piece of plywood is to be heated by dielectric heating. The area of cross-section of the piece is $0.5m^2$ and thickness is 2.5 cm. If the frequency of 25 megacycle per second is used and the power absorbed is 1000 watt. Find the voltage employed necessary for heating. The relative permittivity of wood is 2.5 and power factor is 0.046.

15. Explain the principle of resistance welding with neat sketch.

16. Explain the characteristics of a welding generator with neat sketch.

17. State the function of each component in the electric circuit of a air conditioner with neat sketch.

18. *(a)* Explain the working of magnetic induction lamps.

(b) State the need of power saving devices.

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