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**Question Paper Code : 41014**

**B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018**  
**Eighth Semester**  
**Electrical and Electronics Engineering**  
**EE6801 – ELECTRIC ENERGY GENERATION, UTILIZATION AND**  
**CONSERVATION**  
**(Regulations 2013)**

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

**PART – A**

**(10×2=20 Marks)**

1. Define Electrical drive.
2. Define average speed and scheduled speed.
3. State illumination law.
4. List down the drawbacks of discharge lamps.
5. Mention the applications of induction heating.
6. Define quenching.
7. Define collector efficiency.
8. What is the principle involved in generating solar power ?
9. What are the causes for aerodynamic force ?
10. List down the aspects considered for selecting the wind turbine location.

**PART – B**

**(5×16=80 Marks)**

11. a) i) Explain the requirements of electric traction system. **(6)**  
ii) Describe the mechanism of train movement with speed-time curve. **(10)**

**(OR)**

- b) A train has schedule speed 60 Km/hr between stops which are 6 Kms apart. Determine the crest speed over the run. Assuming trapezoidal speed time curve. The train accelerates at 2 Km/hr/sec. The duration of stop is 60 seconds. **(16)**



12. a) Briefly explain the factors responsible for lighting scheme for roads. (16)

(OR)

b) Two street lamps are 20 m apart and are fitted with a 500 C.P. lamp at a height of 8 m above the ground each. Calculate the illumination at a point under each lamp and midway between the lamps. (16)

13. a) A piece of insulating material is to be heated by dielectric heating. The size is  $10 \times 10 \times 3$  cm. A frequency of 20 MHz is used and the power absorbed is 400 W. Calculate the voltage necessary for heating and current that flows in the material. The material has relative permittivity of 5 and p.f. is 0.05. (16)

(OR)

b) Describe briefly on electric welding and its types. (16)

14. a) Explain the working principle of various types of concentrating solar collectors with neat sketch. (16)

(OR)

b) Explain the operation of solar cell with equivalent circuit and I-V characteristics. (16)

15. a) Explain the construction and operation of VAWT with its advantages and disadvantages. (16)

(OR)

b) Describe the functions of various blocks of a WECS and the power generated from WECS. (16)