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C14-AEI–106

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BOARD DIPLOMA EXAMINATION, (C–14)
MARCH/APRIL—2018
DAEIE–FIRST YEAR EXAMINATION

BASIC ELECTRICAL ENGINEERING

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. State ohm's law.

2. Define *(i)* electric charge *(ii)* electric current

3. Define work, power and energy.

4. List the practical applications of heat produced due to electricity.

5. State Right-hand thumb rule.

6. State work law and its applications.

7. State Lenz's law.

8. Define self inductance and mutual inductance.

9. State different types of capacitors.

10. List the indications of fully charged lead-acid battery.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and the criteria for evaluation is the content but not the length of the answer.

11. *(a)* State parameters affecting the resistance. 4

(b) Three resistors 4Ω, 12Ω and 6Ω are connected in parallel. If the total current is 12A, find the current through the each resistor. 5

12. A house has the following loads : 10

(a) An immersion heater of 1000W working for 2hrs/day

(b) 2KW heater working for 3hrs/day

(c) 10 lamps of 100W each working for 10hrs/day

(d) 5 ceiling fans of 60W each working for 10hrs/day

Calculate the monthly energy charges for the month of January, charges being ₹ 3 per unit with a monthly rent of ₹100/- 10

13. Explain with neat diagram, construction and working of electric cooker. 10

14. *(a)* Compare magnetic circuit with electric circuit. 5

(b) Explain the Laplace law. 5

15. *(a)* Derive an expression for energy stored in a magnetic field. 5

(b) Explain dynamically induced EMF. 5

16. *(a)* Derive an expression for energy stored in capacitor. 5

(b) Determine the force between two charges 8μC, 6μC when they are spaced at 10cm apart in air. 5

17. *(a)* Explain charging of batteries by constant voltage method. 5

(b) Write differences between maintenance free and lead-acid batteries. 5

18. *(a)* State the nature of force with different directions of the current. 5

(b) Explain dielectric strength and dielectric constant. 5

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