*4048*

C14–AEI–106

# 4048

## BOARD DIPLOMA EXAMINATION, (C–14)
## OCT/NOV—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.** Classify Conductors, insulators and semiconductors with reference to valance electrons.

**2.** State Ohm's law.

**3.** Define Electrical energy and mention its S.I unit.

**4.** List any three practical applications of heat produced due to flow of electric current in metal.

**5.** State work's law.

**6.** Define Magnetizing force and reluctance.

**7.** State Fleming's Right hand rule.

**8.** Define Self inductance.

**9.** State Coulomb's law of Electrostatics.

**10.** List the applications of maintenance free batteries.

## PART–B

10×5=50

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

**11.** Derive an expression for resistance at any temperature.

**12.** A house has the following load:
a) An immersion hester 1000 W working for 2 hour a day
b) 2 kW heater working for 3 hours a day
c) 10 lamps of 100 W each working for 10 hours a day
d) 5 ceiling fans of 60 W each working for 10 hours a day
Calculate the monthly energy for the month of january, charges being 60 paise per unit with a monthly rent of Rs: 2/-

**13.** Explain the construction and working of Electric geyser with diagram.

**14.** Derive an expression for the magnitude of force on a conductor placed inside a magnetic field.

**15.** a) Compare Magnatic circut with electric circuit.
b) Obtain an expression for the total capacitance when three capacitors $C_1$, $C_2$, and $C_3$ are connected in series.

**16.** Derive an expression for Lifting power of a magnet.

**17.** Plot the electrostatic field due to :

a) Isolated positive charge
b) Isolated negative charge
c) Unlike charges placed side by side
d) Like charges placed side by side.

**18.** Explain the construction and working of maintenance free batteries.

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