4048

BOARD DIPLOMA EXAMINATION, (C-14)

JUNE-2019

DAEIE - FIRST YEAR EXAMINATION

BASIC ELECTRICAL ENGINEERING

Time: 3Hrs | Max. Marks: 80

PART - A

10x3=30M

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

1) Define the terms (a) potential difference and (b) EMF. 1 ½ +1 ½

2) State the parameters affecting the resistance.

3) Define efficiency. Mention electrical and mechanical units of energy. 2+ ½ + ½

4) An electric kettle marked 500 W, 230 V takes 15 minutes to raise 1 kg of water from 150^0 C to boiling point. Find efficiency.

5) State the left hand thumb rule.

6) State coefficient of coupling.

7) State and explain Lenz's law.

8) Define Mutual Inductance.

9) Define Gauss theorem.

10) State the precautions to be taken during charging and discharging of battery.

PART - B

5x10=50M

Instructions: 1) Answer any **five** questions Each question carries **ten** marks
2) Answer should comprehensive and they criterion for valuation is the content but not length of the Answer.

11) Derive the formula for equivalent resistance when two resistors are connected in series and parallel.

12) A house is fitted with 10 lamps of 50 W each, one heater of 440 W, two fans of 200 W each and an electric press of 1120 W. If all the appliances work for 2 hours per day, Find the electrial bill for the month of January. Electrial energy is supplied at RS. 2 per kWh.

13) Explain how heat is produced due to electrical current in the following appliances. (a) Electric cooker (b) Geyser

14) Compare magnetic and electric circuits in any five aspects.

15) a) Derive the expression for the force when current carrying conductor is placed in magnetic field.
b) Derive an expression for capacitance of a parallel plate capacitor.

16) Derive an expression for energy stored in a magnetic field.

17) Three capacitors of 100 μF, 75 μF and 200 μF are connected in series across 500 V D.C supply. Calculate the total capacitance and charge on each capacitor.

18) Differentiate between maintenance free battery and lead acid battery.

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