

**BASIC ELECTRICAL ENGG.**

(Theory – 4(a))

Full Marks : 40

Time :  $1\frac{1}{2}$  hours

Answer any four questions including Q. Nos. 1 & 2

Figures in the right-hand margin indicate marks

1. Answer *all* questions : 2 × 5
- (a) What is Fleming Right Hand Rule ?
  - (b) What is the function of super heater ?
  - (c) What do you mean by Teak factor ?
  - (d) What is KCL ?
  - (e) What do you mean by impedance of R-L series circuit ?
2. Answer any *three* : 5 × 3
- (a) What do you mean by Faraday's laws of electromagnetic induction, explain.
  - (b) Write the principle of operation of a D.C. motor.
  - (c) What PMMC type instruments, explain.
  - (d) Derive R.M.S. value of alternating quantity.
3. State briefly about Nuclear power plant with necessary block diagram.  $7\frac{1}{2}$
4. The details of electric loads in house are as follows :
- (i) 3 nos. lamps of 60 W each working 5 hrs per day.
  - (ii) 2 nos. tubelight of 40 W each working 4 hrs per day.
  - (iii) 5 nos. fans of 80 W each working 10 hrs per day.
  - (iv) A 1 HP pump working 4 hrs per day.
  - (v) A electric heater of 1 kW working 4 hrs per day.
- Determine the energy consumption and cost of energy at the rate of Rs. 2.50 per unit for the month of Nov, 2018.  $7\frac{1}{2}$
5. A resistance of 25  $\Omega$ , inductance of 0.3 H and capacitance of 150  $\mu\text{F}$  are connected in series and are fed by 230 V, 50 Hz supply. Determine current,  $X_L$ ,  $X_C$ , Z, power factor and active power of the circuit.  $7\frac{1}{2}$