

## *Basic Electronics Numericals*

1. Two capacitors of  $0.0005\mu\text{F}$  and  $0.0007\mu\text{F}$  are connected in series. Find their combined capacitance.
2. Following readings are obtained in transistor circuit of CB Configuration.  $I_E = 1\text{mA}$ ,  $\alpha = 0.95$  Find the values of  $I_B$  and  $I_C$ .
3. A 12V battery of negligible internal resistance is connected across a parallel combination of 4K, 6K, and 12K resistors. Compute
  - I. Combined circuit resistance
  - II. Current supplied by the battery
  - III. Power supplied by the battery.
4. Calculate the inductive reactance offered by a coil of inductance  $250\mu\text{H}$  to radio frequency currents of frequencies
  - (i) 1MHz
  - (ii) 10MHz.
5. Two capacitors of  $4\mu\text{F}$  and  $12\mu\text{F}$  are connected with a battery of 24V in series. Find the charge of each capacitor.
6. A 6volt lead-acid cell has an internal resistance of  $0.01\Omega$ . What would be its short circuit current?
7. A power transformer has 100 primary turns and 600 secondary turns. If primary voltage is 120V and full load primary current is 12Amp. Find secondary
  - i) voltage
  - ii) current in secondary coil.

8. A multiplate capacitor is made of ten plates 4 x 5 cm and separated by mica sheet of 1mm thick. Find its capacitance.  $\epsilon_0 = 8.854 \times 10^{-12}$   $\epsilon_r = 6$
9. Output voltage is 120V, while no. of turns in primary and secondary are 24 and 12 respectively. Find input voltage.
10. A steel ring having a cross sectional area of  $5\text{cm}^2$ , its circumference is 40cm that has a coil of 200 turns. ( $\mu_r = 380$ ) Find
- Reluctance of the ring,
  - current req. to produce a flux of  $80\mu\text{Wb}$ .
11. A 1 phase half wave rectifier supplies power to a  $1\text{K}\Omega$  load. The input supply voltage is 200V rms. neglecting forward resistance of the diode, Calculate
- Vdc
  - Idc
  - ripple voltage (rms value)
12. Calculate the inductive reactance offered by a coil of inductance  $250\mu\text{H}$  to radio frequency currents of frequencies
- 1MHz
  - 10MHz