



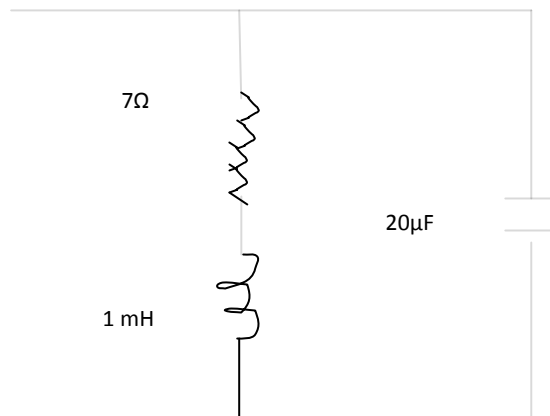
## PART-B

10X5=50

**Instructions** :

1. Answer any **Five** questions.
2. Each question carries **ten** marks.
3. Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer

11. A resistance of 100ohm, an inductance of 0.2 H and a capacitor of 150  $\mu$ F are connected in series across 230V, 50Hz supply. Calculate
- a) Total impedance.
  - b) Current (I)
  - c) Power factor
  - d) Power consumed in the circuit
12. (a) Compare series and parallel resonant circuits.  
(b) In the parallel resonant circuit shown in figure, find the resonant frequency.



13. (a) State and explain Faraday's laws of electromagnetic induction  
(b) Classify DC generators based on the type of excitation and field winding connections.
14. Explain the working of three point starter used in DC motors with a neat sketch.
15. (a) Explain the working of thermal power plant with neat sketch.  
(b) Three coils each having a resistance of 20 ohm and inductive reactance of 15 ohm are connected in star to 400v, 3-Phase, 50 Hz supply. Calculate
- (a) The line current
  - (b) Power factor.

16. What is the working principle of a transformer? Derive the e.m.f. equation of a transformer.
17. Explain the working principle of capacitor start single phase induction motor and mention its applications.
18. Two impedances  $Z_1 = (6+j8)$  and  $Z_2 = (8-j6)$  are connected in parallel. Calculate the total
- a) Conductance
  - b) Susceptance
  - c) Admittance and
  - d) Current taken from the supply and its P.F. if the supply voltage is 200V, 50Hz

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