



<b>Q-4</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Explain potential and electric field due to electric dipole.	05
	b) Explain potential gradient and electric field.	05
	c) Explain potential of charged sphere (shell).	04
<b>Q-5</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Explain capacitance of parallel plate capacitor.	05
	b) Explain in detail electric potential.	05
	c) An air cored solenoid has 300 turns, its length is 25 cm and its cross section is $3 \text{ cm}^2$ . Calculate its self-inductance in henry.	04
<b>Q-6</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Establish following relations : (i) $B = \mu_0 (M+H)$ and (ii) $\mu_r = 1+\chi_m$ .	05
	b) What do you mean by a solenoid? How can you determine its polarity?	05
	c) Write applications of ferrites.	04
<b>Q-7</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Explain classifications of magnetic materials.	06
	b) Write short notes on (i) self-inductance and (ii) mutual inductance.	08
<b>Q-8</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) What is meant by magnetic hysteresis? Draw hysteresis loop of $B \rightarrow H$ curve for ferromagnetic materials and explain its each segment.	07
	b) Discuss Hall effect in detail derive formula of Hall electric field ( $E_H$ ), Hall voltage ( $V_H$ ), Hall coefficient ( $R_H$ ) and Hall mobility ( $\mu_H$ ).	07

