



Chapter	24													
Due Date														
Text Questions	Page's 646 & 647	1	3	5	6	8								
Text Problems	Page's 647 - 655	4	5	9	17	30	44	47	55	57	58	89	92	
		94	99	100	107	114								

Chapter	25													
Due Date														
Text Questions	Page's 674 & 675	2	5	7	8	9	11							
Text Problems	Page's 675 - 681	8	9	17	21	23	28	30	31	42	43	44	47	
		48	49	82										

Chapter	26													
Due Date														
Text Questions	Page 699	03	04	5	7	9								
Text Problems	Page's 700 - 704	01	06	37	45	59	62	63	76	79				

Chapter	27													
Due Date														
Text Questions	Page's 724 & 725	2	3	4	6	8	9	10						
Text Problems	Page's 725 - 734	18	19	20	27	30	32	33	43	53	68	84	88	
		89	101											

Chapter	28													
Due Date														
Text Questions	Page's 756 & 757	01	02	04	05	08								
Text Problems	Page's 757 - 763	06	16	18	20	30	32	35	37	39	43	45	48	
		71	79	80	81	84								

Chapter	29													
Due Date														
Text Questions	Page's 781 & 782	2	3	6	7	8	9							
Text Problems	Page's 782 - 790	5	6	15	17	21	33	37	41	53	61	81	83	
		88	91	92										

Chapter	30													
Due Date														
Text Questions	Page's 816 & 817	1	2	3	7	8	9							
Text Problems	Page's 817 - 825	2	5	11	15	19	24	29	31	32	33	41	47	
		48	52	60	63	87	89	98						

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## Answers to Even Numbered Problems

Chapter 21	
2:	2.81 N
8:	(a) 9.0; (b) -25
10:	-4
48:	(a) $\left(\frac{L}{2}\right)\left(1 + \frac{kqQ}{Wh^2}\right)$ ; (b) $\sqrt{\frac{3kqQ}{W}}$
66:	(b) $ q  = 2.4 \times 10^{-8} \text{ C}$

Chapter 22	
6:	$(-6.39 \times 10^5 \text{ N/C})i$
22:	0.506
30 :	$6.3 \times 10^3 \text{ N/C}$
40:	(a) 7.12 cm, (b) 28.5 ns, (c) 11.2%
50 :	(a) 0, (b) $8.5 \times 10^{-22} \text{ N}\cdot\text{m}$ , (c) 0
84:	Assume $z \ll R$
86:	(a) yes, (b) upper plate: 2.72 cm
90:	

Chapter 23	
20:	(a) 0 (b) $5.99 \times 10^3 \text{ N/C}$
32:	(a) $(2.00 \times 10^{-11}) \mathbf{j}$ (b) 0 (c) $(2.00 \times 10^{-11}) \mathbf{j}$
38:	$4.9 \times 10^{-10} \text{ C}$
50:	(a) 0 (b) 0 (c) 0 (d) $7.32 \text{ N/C}$ (e) $12.1 \text{ N/C}$ (f) $1.35 \text{ N/C}$

Chapter 24	
4:	(a) 2.46 V; (b) 2.46 V; (c) 0
30:	670 V/m
44 :	$6.63 \times 10^6 \text{ m/s}$
58:	(a) 1.69 kV/m; (b) 36.7 kV/m; (c) 0; (d) 6.74 kV; (e) 27.0 kV; (f) 34.7 kV; (g) 45.0 kV; (h) 45.0 kV; (i) 45.0 kV
92 :	$1.48 \times 10^7 \text{ m/s}$
94:	$\left(\frac{qQ}{8\pi\epsilon_0}\right)\left(\frac{1}{r_1} - \frac{1}{r_2}\right)$
100:	(a) $\frac{q(3R^2 - r^2)}{8\pi\epsilon_0 R^3}$ ; (b) $\frac{q}{8\pi\epsilon_0 R}$
114:	Not Available

Chapter 25	
8	7.33 mF
28	(a) 750 $\mu\text{C}$ ; (b) 50 V; (c) 18.8 mJ; (d) 500 $\mu\text{C}$ ; (e) 50.0 V; (f) 12.5 mJ; (g) 250 $\mu\text{C}$ ; (h) 450.0 V; (i) 6.25 mJ
30	(a) 400 $\mu\text{C}$ ; (b) 100 V; (c) 20.0 mJ; (d) 333 $\mu\text{C}$ ; (e) 33.3 V; (f) 5.55 mJ; (g) 333 $\mu\text{C}$ ; (h) 66.7 V; (i) 11.1 mJ
42	8.41 pF
44	45.5 pF
48	(a) 7.2; (b) 0.77 $\mu\text{C}$
82	(a) 0.708 pF; (b) 1.67; (c) -5.44 J; (d) sucked in.

Chapter 26	
6.	(a) 6.4 A/m <sup>2</sup> ; (b) 1.8 X 10 <sup>-15</sup> m/s
62.	(a) 1.3 m $\Omega$ ; 4.6 mm
76.	(a) 3.1 X 10 <sup>11</sup> ; (b) 25 $\mu\text{A}$ ; (c) 1.3 kW; (d) 25 MW

Chapter 27	
18.	(a) 2.50 $\Omega$ ; 3.13 $\Omega$
20.	0.25 V
30.	(a) 119 $\Omega$ ; (b) 50.5 mA; (c) 19.0 mA; (d) 19.0 mA; e 12.5 mA
32.	(a) 24.0 A; (b) 30.0 A; (c) series; (d) 60.0 A; (e) 48.0 A; (f) parallel
68.	Solution not yet available.
84.	(a) 38 $\Omega$ ; (b) 260 $\Omega$
88.	0.143

Chapter 28	
6.	3.75km/s
16.	(a) $1.11 \times 10^7$ m/s; (b) 0.316mm
18.	(a) $2.60 \times 10^6$ m/s; (b) 0.109 $\mu$ s; (c) 0.140MeV; (d) 70 kV
20.	(a) 1.0MeV; (b) 0.5MeV
30.	(a) 0.787 T; (b) 8.34MeV; (c) 23.9MHz; (d) 33.2MeV
32.	20.1N
48.	(a) $0.184\text{A} \cdot \text{m}^2$ ; (b) $1.45\text{N} \cdot \text{m}$
80.	$(-0.34\text{mT}) \mathbf{k}$
84.	(a) 1.4; (b) 1.0

Chapter 29	
6.	(a) $0.118 \mu\text{T}$ ; (b) into
88.	$(1.25 \mu\text{T}) \mathbf{i}$
92	(a) $\mu_0 i r / 2\pi c^2$ ; (b) $\mu_0 i / 2\pi r$ ; (c) $\mu_0 i (a^2 - r^2) / 2\pi (a^2 - b^2) r$ ; (d) 0

Chapter 30	
2.	(a) 31mV; (b) left
24.	(a) 14 nWb; (b) $10 \mu\text{A}$
32.	(a) 85.2Wb; (b) 56.8V; (c) 1
48.	12.3 s
52.	(a) 3.33 A; (b) 3.33 A; (c) 4.55 A; (d) 2.73 A; (e) 0; (f) -1.82A (reversed); (g) 0; (h) 0
60.	(a) $2.4 \times 10^2\text{W}$ ; (b) $1.5 \times 10^2\text{W}$ ; (c) $3.9 \times 10^2\text{W}$
98.	$L_1 E (L_1 + L_2)^{-1} R^{-1}$