

Instructor's Manual

Applied Physics

Twelfth Edition

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Table of Contents

Chapter 0	1
Chapter 0 Review Questions	1
Chapter 1	1
Chapter 1 Review Questions	4
Chapter 1 Review Problems	5
Chapter 2	5
Chapter 2 Review Questions	7
Chapter 2 Review Problems	8
Chapter 2 Applied Concepts	8
Chapter 3	9
Chapter 3 Review Questions	17
Chapter 3 Review Problems	18
Chapter 3 Applied Concepts	20
Chapter 4	20
Chapter 4 Review Questions	29
Chapter 4 Review Problems	29
Chapter 4 Applied Concepts	31
Chapter 5	32
Chapter 5 Review Questions	35
Chapter 5 Review Problems	35
Chapter 5 Applied Concepts	36
Chapter 6	36
Chapter 6 Review Questions	42
Chapter 6 Review Problems	43
Chapter 6 Applied Concepts	44
Chapter 7	45
Chapter 7 Review Questions	58
Chapter 7 Review Problems	58
Chapter 7 Applied Concepts	61
Chapter 8	62
Chapter 8 Review Questions	66
Chapter 8 Review Problems	66
Chapter 8 Applied Concepts	67
Chapter 9	68
Chapter 9 Review Questions	75
Chapter 9 Review Problems	76
Chapter 9 Applied Concepts	77
Chapter 10	78
Chapter 10 Review Questions	82
Chapter 10 Review Problems	82
Chapter 10 Applied Concepts	83
Chapter 11	84
Chapter 11 Review Questions	85
Chapter 11 Review Problems	85
Chapter 11 Applied Concepts	86
Chapter 12	87
Chapter 12 Review Questions	91

Chapter 12 Review Problems	91
Chapter 12 Applied Concepts	92
Chapter 13	93
Chapter 13 Review Questions	97
Chapter 13 Review Problems	98
Chapter 13 Applied Concepts	99
Chapter 14	101
Chapter 14 Review Questions	107
Chapter 14 Review Problems	108
Chapter 14 Applied Concepts	108
Chapter 15	109
Chapter 15 Review Questions	112
Chapter 15 Review Problems	113
Chapter 15 Applied Concepts	113
Chapter 16	114
Chapter 16 Review Questions	116
Chapter 16 Review Problems	117
Chapter 16 Applied Concepts	118
Chapter 17	119
Chapter 17 Review Questions	127
Chapter 17 Review Problems	128
Chapter 17 Applied Concepts	130
Chapter 18	131
Chapter 18 Review Questions	132
Chapter 18 Review Problems	132
Chapter 18 Applied Concepts	133
Chapter 19	134
Chapter 19 Review Questions	140
Chapter 19 Review Problems	140
Chapter 19 Applied Concepts	142
Chapter 20	143
Chapter 20 Review Questions	146
Chapter 20 Review Problems	146
Chapter 20 Applied Concepts	147
Chapter 21	148
Chapter 21 Review Questions	149
Chapter 21 Review Problems	150
Chapter 21 Applied Concepts	151
Chapter 22 Review Questions	151
Chapter 23	152
Chapter 23 Review Questions	155
Chapter 23 Review Problems	155
Chapter 23 Applied Concepts	157
Chapter 24	157
Chapter 24 Review Questions	158
Chapter 24 Review Problems	158
Appendix A	158
Appendix B	160
Appendix D	161

Chapter 0

Chapter 0 Review Questions

1. d
2. b
3. c
4. b
5. d
6. Archimedes conducted and documented his physical theories.
7. Science is a system of knowledge while technology uses that knowledge to develop material products or processes that satisfy human needs and desires.
8. Behavior of light – Fiber Optics; Electricity – light bulb.
9. The scientific method is used to discover facts about the natural world. The problem solving method uses the scientific method to create something useful.
10. Knowledgeable of the physical world. It allows one to understand and answer new questions about everyday occurrences. It is also important in many technical fields.

Chapter 1

1.2

- | | | | | | |
|--------------------|-------------------|-------------------|---------------------------|--------------------|------------|
| 1. kilo | 2. centi | 3. hecto | 4. deci | 5. milli | 6. deka |
| 7. mega | 8. micro | 9. h | 10. k | 11. m | 12. d |
| 13. M | 14. da | 15. c | 16. μ | 17. 135 mm | 18. 83 dag |
| 19. 28 kl | 20. 52 cm | 21. 49 cg | 22. 85 mg | 23. 75 hm | 24. 15 dL |
| 25. 24 metres | 26. 185 litres | 27. 59 grams | 28. 125 kilograms | 29. 27 millimeters | |
| 30. 25 decilitres | 31. 45 dekametres | 32. 27 milligrams | 33. 26 megametres | | |
| 34. 275 micrograms | 35. metre | 36. kilogram | 37. litre and cubic metre | | |
| 38. ampere | 39. second | 40. watt | | | |

1.3

- | | | | | | |
|---------------------------|----------------------------|--------------------------|-------------------------|--------------------------|---------------------------|
| 1. 3.26×10^2 | 2. 7.98×10^2 | 3. 2.65×10^3 | 4. 1.45×10^4 | 5. 8.264×10^2 | 6. 2.497×10^1 |
| 7. 4.13×10^{-3} | 8. 5.3×10^{-4} | 9. 6.43×10^0 | 10. 4.823×10^5 | 11. 6.5×10^{-5} | 12. 2.24×10^{-3} |
| 13. 5.4×10^5 | 14. 1.4×10^6 | 15. 7.5×10^{-6} | 16. 9×10^{-7} | 17. 5×10^{-8} | 18. 3.5×10^9 |
| 19. 7.32×10^{17} | 20. 6.18×10^{-16} | 21. 86,200 | 22. 867 | 23. 0.000631 | 24. 5410 |
| 25. 0.768 | 26. 99.4 | 27. 777,000,000 | 28. 0.00000419 | 29. 69.3 | 30. 0.0378 |
| 31. 96,100 | 32. 7330 | 33. 1.4 | 34. 0.000096 | 35. 0.0000084 | 36. 900,000,000 |
| 37. 700,000,000,000 | | 38. 4.05 | 39. 0.00000072 | 40. 0.000000008 | |
| 41. 4,500,000,000,000 | | 42. 150,000,000,000 | | 43. 0.000000000055 | |
| 44. 0.000000000872 | | | | | |

1.4

- | | | | | | |
|------------|------------|----------------|-----------------|----------------|----------------|
| 1. 1 metre | 2. 1 metre | 3. 1 kilometre | 4. 1 centimetre | 5. 1 kilometre | 6. 1 kilometre |
| 7. cm | 8. mm | 9. m | 10. cm | 11. mm | 12. km |
| 13. km | 14. m | 15. mm | 16. m | 17. m | 18. cm |
| 19. km | 20. mm | 21. cm | 22. m | 23. km | 24. cm |
| 25. km | 26. cm | 27. mm | 28. cm | 29. 1000 | 30. 0.001 |