

ANSWER KEY FILE

1. B B;
2. B B;
3. A A;
4. D  $\alpha = \frac{\omega_2 - \omega_1}{t} = \left[ \frac{1200 \times 2\pi}{60} - \frac{600 \times 2\pi}{60} \right] \text{rad s}^{-1} / 10\text{s} = 2\pi \text{rad s}^{-2}$   
D;
5. D D; Rotation about the sun has no effect on the weight of the bodies.
7. D D; Current increases as external resistance decreases.
8. D D;
9. B  
B; Here  $MV = mv$ . Hence  $\left( \frac{1}{2} MV^2 \right) M = \frac{1}{2} (mv^2) m$  That is  $\frac{\frac{1}{2} mv^2}{\frac{1}{2} Mv^2} = \frac{M}{m}$
10. B B; Maximum velocity of oscillator is called velocity amplitude. Since velocity of SHM  $= \omega [A^2 - x^2]^{\frac{1}{2}}$ . Hence  $v(\text{max}) = \omega A$ .
11. D D;  $\Delta Q = \Delta U + \Delta W = U_2 - U_1 + \Delta W$ . Hence  $\Delta Q = -30\text{J}$ ,  $\Delta W = -22\text{J}$ ,  $U_1 = 20\text{J}$ . Hence  
 $U_2 = \Delta Q - \Delta W + U_1$   
 $= -30\text{J} - (-22\text{J}) + 20\text{J} = 12\text{J}$ .
12. D D; For monoatomic gas  $C_v = \frac{3}{2} R$ . For diatomic gases  $C_v = \frac{5}{2} R$ . So average  $C_v$  for the mixture is  $C_v = \frac{1}{2} \left[ \frac{3}{2} R + \frac{5}{2} R \right] = 2R$ . Hence  $C_p$  for the mixture is  $C_v + R = 3R$ . And  $\gamma = \frac{C_p}{C_v} = \frac{3}{2} = 1.5$ .
13. D D; Total number of surfaces = 6. Total flux =  $30C$ . So, flux through each surface =  $5C$ .
14. C C; In parallel combination  $\frac{k_1 A \Delta T t}{l} + \frac{k_2 A \Delta T t}{l} = \frac{k_2 A \Delta T t}{l}$ . It gives  
 $k = \frac{(k_1 + k_2)}{2} = \frac{(2 + 3)}{2} = 2.5$ .
15. A A; The cavity also expands.
16. C C;
17. A A;
18. C C;
19. B B;
20. B B;
21. D D;
22. A A;
23. B B;
24. B B;
25. B B;
26. C C;

ANSWER KEY FILE

27. D D;  
28. D D;  
29. C C;  
30. C C;  
31. C C;  
32. B B;  
33. D D;  
34. D **D**;  
35. D **D**;  
36. C C;  
37. a  
38. C C;  
39. C C;  
40. A A;  
41. D D;  
42. B B;  
43. D D;  
44. B B;  
45. C C;  
46. D D;  
47. B B;  
48. C C;  
49. A A;  
50. A A;  
51. B B;  
52. B B;  
53. D D;  
54. A A;  
55. B B;  
56. B B;  
57. C C;  
58. D D;  
59. C C;  
60. A A;  
61. D D;  
62. A A;  
63. C C;  
64. B B;  
65. B B;  
66. B B;  
67. C C;  
68. C C;  
69. C C;  
70. C C;  
71. D D;  
72. C C;  
73. B B;

MAJOR KALSHI CLASSES

ANSWER KEY FILE

74. A A;  
75. A A;  
76. A A;  
77. B B;  
78.  
79. D D;  
80. A A;  
81. A A;  
82. D D;  
83. C C;  
84.  
85. B B;  
86. C C;  
87. A A;  
88. B B;  
89. B B;  
90. A A;  
91. A A;  
92. C C;  
93. B B;  
94. A A;  
95. C C;  
96.  
97. A  
98. C  
99. C  
100. A  
101. B  
102. B  
103. C  
104. C  
105. A  
106. D  
107. B  
108.  
109. A  
110. A  
111. B  
112. A  
113. A  
114. A  
115. D  
116. A  
117. A  
118. C  
119. B  
120. D

MAJOR KALSHI CLASSES

97.  
97.

MAJOR KALSHI CLASSES