

Microbe Mission MIT Answer Key:

1. 200
2. 50
3. 10
4. 0.4
5. 5
6.  $3.3 \times 10^6$
7.  $7 \times 10^4$
8.  $2 \times 10^{-3}$
9.  $1.337 \times 10^4$
10. 960  $\mu\text{m}$
11. 192  $\mu\text{m}$
12. Algae or Protist
13. C
14. A
15. D
16. A
17. B
18. D
19. C
20. B
21. B
22. A
23. A
24. D
25. C
26. Course Focus
27. Objective Lens
28. Contrast
29. Part 7
30. Part 3, 4, or 5
31. 72 Hours
32. 4000
33. 40-42 bac/hr
34. ~5000 bacteria
35. Lag
36. Stationary
37. Log
38. Stationary
39. Log
40. Death
41. Pink
42. Destaining with Alcohol
43. Outer Membrane
44. Cell Wall
45. Gram Negative
46. Myobacterium tuberculosis, Legionella pneumophila (2 points)
  1. Half Credit for disease names TB, Legionella
47. Water
48. Air
49. Gram positive
50. True
51. Aerobic
52. Artificial sweeteners, Animal Feed.
53. Fermentation
54. Lactic Acid
55. Penicillium
56. CO<sub>2</sub>
57. Curd
58. A
59. A
60. C
61. C
62. B
63. A
64. B/D
65. D
66. D
67. A
68. A
69. A
70. D
71. Adsorption/Attachment
72. Penetration
73. Replication (Biosynthesis)
74. Assembly (Maturation)
75. Release (budding)
76. CD4+ T cells
77. Yes
78. Primates
79. Antibodies to HIV, Viral RNA detection, CD4 T cell Count (3 points)
80. Blood Transfusion
81. Surface Pili
82. Cytokine blockers

83. Kills Macrophages  
 84. Extracellular  
 85. Extracellular  
 86. Extracellular  
 87. Extracellular  
 88. Y  
 89. Y  
 90. N  
 91. Negative  
 92. Positive  
 93. Positive  
 94. Humoral  
 95. Cell mediated  
 96. Tuberculosis  
 97. No  
 98. BCG Vaccine, False Positive (2 points)  
 99. MRSA  
 100. Making sure the MRSA is not Antibiotic resistant to the antibiotics you prescribe (2 points)  
 101. Intracellular  
 102. Y  
 103. Y  
 104. Fast  
 105. Slow  
 106. F  
 107. F  
 108. T  
 109. T  
 110. F  
 111. T  
 112. F  
 113. T  
 114. T  
 115. T  
 116. Respiratory  
 117. Contact with Bird/Bat Droppings  
 118. Inhalation of Spores  
 119. Lung Biopsy  
 120. Antifungals  
 121. pathogen changes its (surface) proteins/ antigens either by gene switching or mutation to a form which can no longer be recognized by the immune system (2 points) (one for first and second part)

122. Pfemp genes/proteins can switch during the course of infection  
 123. Red Blood cells  
 124. Merozoite  
 125. IgA  
 126. Takes time to cross species barrier. The PrPSc appears to alter the protein structure of the native PrPc to produce more of the mutant PrPSc This slow "infectious" process takes many years for the alteration structure (replication). (3 points) (one first each part)  
 127. template-assisted replication  
 128. C  
 129. G  
 130. A  
 Five Tiebreakers Total (In order)  
 40, 57, 78, 125, 129  
 Total Points: 137