

Microbe Mission **KEY**; Questions are 1 pt unless indicated otherwise

- 1: energy 2: electron 3: carbon  
 4: light 5: chemo 6: chemical compounds  
 7: litho 8: organo 9: organic  
 10: auto 11: carbon dioxide 12: hetero  
 13: 1 14: carbon dioxide  
 15: not 16: organic 17: electron 18: B 19: D  
 20: B 21: D 22: C 23: D 24: D 25: C 26: B  
 27: C 28: B 29: C 30: B 31: C 32: D 33: C  
 34: D 35: A 36: A 37: B 38: D 39: A 40: C  
 41: C 42: B 43: B 44: D 45: D 46: D 47: D  
 48: Commensalism 49: 4  
 50: Diaphragm 51: Tungsten  
 52: Cell membrane 53: Phase contrast  
 54: *Plasmodium falciparum* 55: female  
 56: spirochete 57: carbon dioxide  
 58: septate hyphae are divided into cells (+1),  
 coenocytic hyphae are not (+1)  
 59: UV light damages genetic material (+1), so lytic  
 replication would allow viruses to replicate faster  
 (+1)  
 60: A monophyletic group contains an ancestor (+1)  
 and all its descendants (+1). A paraphyletic group  
 contains an ancestor (+1) but only some of its  
 descendants (+1). A polyphyletic group contains  
 organisms with no recent common ancestor (+1).  
 61: Integration refers to a virus inserting its genetic  
 material in its host cell.  
 62: to block [directly transmitted] light  
 63: nitrogen (+1), ammonia (+1), ammonium [ion]  
 (+1), nitrate [ion] (+1)  
 64: Scanning Electron Microscopy (SEM) (+1) to view  
 the surface features (+1)  
 65: to fixate CO<sub>2</sub> in cyanobacteria and some  
 bacteria  
 66: they can only replicate within their host's cells  
 67: spirochete, bacillus, vibrio, coccus (+2). all of  
 these bacteria are small in order to more efficiently  
 intake nutrients (+1)  
 68: Polymerase Chain Reaction (+1) steps: (1)  
 denaturation (+1) of the template into single  
 strands (+1); (2) annealing (+1) of primers to each  
 original strand for new strand synthesis (+1); and (3)  
 extension (+1) of the new DNA strands from the  
 primers (+1)  
 69: gram+ bacteria would appear pink (+3); partial  
 credit: +2 for gram+ bacteria appearing colorless.  
 +1 for gram's iodine wouldn't fix the crystal violet in  
 bacteria  
 70: the blood cells carry enough oxygen to support  
 the person but not *P. falciparum*  
 71: carbon (+0.5), hydrogen (+0.5), oxygen (+0.5),  
 nitrogen (+0.5)  
 72: the colonies are spread out when using a  
 spread plate method during the streaking process  
 73: No, *Pyrococcus furiosus* does not cause disease  
 (+1) because it is part of the kingdom Archaea (+1)  
 and optimally grows at temperatures significantly  
 higher than that of the human body (+1).  
 74: Transduction (+1). Transfection involves nucleic  
 acids being inserted into cells via non viral methods  
 (+1).  
 75: if they're able to grow exponentially, then  
 they're thriving due to sufficient resources (+1), so it  
 doesn't make sense for them to need to form  
 endospores as a survival mechanism (+1)  
 76: can emit too much heat (+1), less (+1)  
 77: *Pyrococcus furiosus* (+1), as it is able to survive at  
 higher temperatures (+1)  
 78: Fermentation is an anaerobic process (+1) that  
 generates ATP (energy) by breaking down glucose  
 or other organic compounds, allowing cells to  
 produce energy even in the absence of oxygen (+1).  
 It occurs in the cytoplasm (+1) of both prokaryotic  
 and eukaryotic cells.