

BBL341 Environmental Biotechnology

MINOR I

Date: 7th Feb 2019

Max Marks: 25 marks

Duration: 1 h

1. What is the difference between "habitat" and "niche"? 2
2. Explain the 10% rule? What is its significance in ecological terms? 2
3. *Roshinee chanced upon an efficient isolate for bioremediation and needed to identify the organism. Upon DNA-DNA hybridization with Pseudomonas putida she obtained a percent match of 80%. Further on analysing the 16S rRNA sequence of V1-V3 region she got a match of 98.6% with the same organism (Pseudomonas putida). With this information she determined the isolate as Pseudomonas putida.*
Comment on the approach adopted by Roshinee and her conclusion. What are your suggestions to Roshinee concerning the above? 3

4. What are the properties of (a) bacteria and (b) surface, that can affect nitrogen formation? Elaborate on each. 4
5. Arrange in order of hierarchy: Community, Species, Population, Ecosystem 1
6. (a) How will a food chain of Primary producer > Primary Consumer > Secondary Consumer > Tertiary Consumer > Quaternary Consumer, be affected if all consumers are homeotherms vs. when all are poikilotherms? (Hint- homeotherm: warm blooded; poikilotherm: cold blooded) 15
- (b) Draw a food chain with humans as quaternary consumers. 0.5
6. What are the possible fates when an ecosystem in equilibrium faces disturbances? How is diversity related to an ecosystem's response to disturbance? 3
7. Compare grazing and detritus food chains. Can the grazing food chain sustain in isolation? Explain your answer? 3
8. Define and give an appropriate example for: Microbial guild, amensalism, biocapacity, K strategic organism, ecological footprint 5