

2/22

1808E318

Candidate's Seat No : \_\_\_\_\_

B.Sc. Sem-5 Examination

S.E 305

Biotechnology / Env. Science

August 2021

Time : 2-00 Hours]

[Max. Marks : 50

Instructions:

1. Draw figures wherever necessary.
  2. Write question number against each answer.
  3. Answer any **three** out of initial **eight** main questions. Question 9 is compulsory.
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1. (A) Describe Liebig's Law of the Minimum, Shelford's Law of Tolerance 7  
(B) Discuss about unique structural features of extremophiles 7
  2. (A) Explain in detail about molecular chaperons. 7  
(B) Write a brief note on adaptations in different environmental conditions. 7
  3. (A) Describe molecular adaptations of thermophiles. 7  
(B) Discuss about ecological sites of thermophiles. 7
  4. (A) Explain different temperature classes of microbes in extreme environment. 7  
(B) Write a brief note on biotechnological significance of thermophiles. 7
  5. (A) Explain biochemistry and physiology of halophiles. 7  
(B) Give brief account general characteristics of common halophilic genera. 7
  6. (A) Discuss types and applications of halophiles. 7  
(B) Describe habitats of halophiles 7
  7. (A) Discuss adaptations of barophiles. 7  
(B) Write about characteristics of acidophiles and alkalophiles. 7
  8. (A) Explain biochemistry and physiology of oligotrophs. 7  
(B) Discuss characteristic adaptation of xerophiles. 7

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9. Answer in short, any **eight**.

- (1) Define extremophile. Give example.
- (2) Name the organisms which can live below 5°F.
- (3) Which three domains do extremophiles belong?
- (4) Give an example of alkaliphile.
- (5) What type of organisms can grow in refrigerator temperatures?
- (6) Active transport of a substance across a membrane requires-----
- (7) A cell exposed to hypertonic environment will \_\_\_\_\_ by osmosis
- (8) What is homeostatis?
- (9) Name pschrotolerant organisms which spoil food.
- (10) What is the temperature in hydrothermal vents?
- (11) Name the two categories of extremophiles.
- (12) *Posidonia oceanica* is an example of-----
- (13) What is white smoker?
- (14) Name one extremophile animal
- (15) What is the most common chemical in deep sea vents?
- (16) Name the enzymes produced by acidophiles.
- (17) What is mesophile? Give example.
- (18) Chaperones bind to which type of amino acids?
- (19) Heat-shock response was first observed in which organism?
- (20) Where are barophiles found?

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