

Lesson (2): Bacterial Growth and physiology

1- Bacterial cell death is balanced by formation of new cells in:

- a) Lag phase
- b) Stationary phase
- c) Logarithmic phase
- d) Decline phase

2- Autotrophic bacteria utilize the following substances for growth:

- a) Organic source of carbon and nitrogen
- b) Organic source of carbon and inorganic source of nitrogen
- c) Inorganic source of carbon and nitrogen
- d) None of the above

3- Pathogenic bacteria are:

- a) Autotrophic
- b) Heterotrophic
- c) Phototrophic
- d) Chlorotrophic

4- Facultative anaerobic bacteria can grow in:

- a) Complete absence of O₂
- b) In the presence or absence of O₂
- c) In small amount of CO₂
- d) In small amount of O₂

5- Saprophytic bacteria:

- a) Require an organic form of carbon for growth
- b) Require an organic form of nitrogen for growth
- c) Require only inorganic salts, H₂O, CO₂ for growth
- d) All of the above

6- Commensal bacteria:

- a) Require an organic form of carbon for growth
- b) Require higher concentration of CO₂
- c) Require only inorganic salts, H₂O, CO₂ for growth
- d) None of the above

7- Heterotrophic bacteria are:

- a) Commensals
- b) Opportunistic
- c) Pathogenic
- d) All of the above

8- Bacteria which grow best in the presence of traces of oxygen are:

- a) Obligatory aerobes
- b) Microaerophilic organisms
- c) Obligate anaerobes
- d) Facultative anaerobes

9- Bacteria which grow only in the absence of oxygen are:

- a) Obligate aerobes
- b) Microaerophils
- c) Obligate anaerobes
- d) Aerotolerant anaerobes

10- Most pathogenic bacteria grow well at a pH of:

- a) 4.5
- b) 7.5
- c) 8.5
- d) 6.5

11- Most pathogenic bacteria grow in:

- a) Acidic pH
- b) Alkaline pH
- c) Neutral pH
- d) All of the above

12- Free living microorganisms, obtain energy from oxidation of inorganic matter are:

- a) Pathogenic
- b) Saprophytic
- c) Opportunistic
- d) Commensals

13- In the lag phase of bacterial growth curve:

- a) Bacteria give rise to daughter cells under optimum condition
- b) Enzymes are accumulated preparing for multiplication
- c) The death rate increases
- d) There is balance between bacterial death and formation of new cells

14- In the bacterial growth curve, logarithmic phase corresponds clinically to:

- a) Incubation period
- b) Recovery from disease
- c) Active disease
- d) Convalescence

15- In logarithmic phase:

- a) Bacteria adapt to growth medium
- b) Number of viable bacteria increases by time
- c) Death rate increase
- d) No increase in viable bacterial count

16- Growth of bacteria refer to:

- a) Increase in size
- b) Increase in number
- c) Deposition of fat
- d) a & b

17- The length of the lag phase depends on the following factors EXCEPT:

- a) The nature of the organism
- b) The size of the inoculum
- c) The nutritive value of the medium
- d) The morphology of the organism

18- Bacterial cell death is balanced by the formation of new cells occurs in:

- a) Lag phase
- b) Stationary phase
- c) Logarithmic phase
- d) Decline phase

19- Logarithmic phase of bacterial growth is due to:

- a) Exhaustion of nutrients
- b) Oxygen starvation
- c) Accumulation of toxic substances
- d) Regular cell division at a maximal rate

20- The stage of preparation for bacterial multiplication lies in:

- a) Lag phase
- b) Stationary phase
- c) Logarithmic phase
- d) Decline phase

21- Recovery from infectious disease correlates with:

- a) Lag phase
- b) Stationary phase
- c) Logarithmic phase
- d) Decline phase

22- Decline phase of bacterial growth is due to:

- a) Exhaustion of nutrients
- b) Oxygen starvation
- c) Accumulation of toxic substance
- d) All of the above

23- Bacteria are highly susceptible to antimicrobial agents when growth occurs in the:

- a) Stationary phase
- b) Logarithmic phase
- c) Lag phase
- d) Decline phase

24- Match suitable phase of bacterial growth curve with each stage of disease:

- | | |
|----------------------|-------------------------------------|
| 1- Logarithmic phase | a- Incubation period of the disease |
| 2- Stationary phase | b- Clinical signs and symptoms |
| 3- Phase of decline | c- Convalescent stage |
| 4- Lag phase | |

25- Match:

- | | |
|-----------------------------|---|
| 1- During lag phase | a- Constant growth rate of the bacteria |
| 2- During stationary phase | b- Increasing growth rate of bacteria |
| 3- During decline phase | c- Negative growth rate of bacteria |
| 4- During logarithmic phase | d- Zero growth rate of bacteria |