

## Bio204 current papers for final term spring 2018

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- 1) **spectrophotometer** is used to determine turbidity ("cloudiness")
- 2) The Growth Yield (Y) is the increase in cell mass (dX) which results due to consumption of a small amount of **substrate**.
- 3) The storage phase: equivalent to the late **exponential phase**.
- 4) Microbial Growth Kinetics includes \_\_\_\_\_. The **balanced phase**, The **storage phase**, The **maintenance phase**, all
- 5) Accumulation = **Growth – Death**
- 6) Pirt (1979) has expressed the change in **product** concentration in variable volume fedbatch culture.
- 7) Pirt (1979) described the kinetics of fixed **volume** fed-batch culture.
- 8) **Exponential growth** in batch culture may be prolonged by the addition of fresh medium to the vessel.
- 9) **An alternative** type of continuous culture to the chemostat is the turbidostat.
- 10) Yields of cells per mole of ATP is not constant for **all** bacteria.
- 11) There is **no** universal bioreactor.
- 12) Intermig impeller is a **axial flow impeller** which is used for **microbial fermentations**.
- 13) The oxygen delivery system consists of except : **a compressor, an inlet air sterilization system, an air sparger exit air sterilization system. These three were given forth one was the ans.**
- 14) For larger laboratory scale fermenters have the capacity up to **1000 litres**.
- 15) Air flow rates are typically reported in terms of **vvm**.
- 16) A sparger ring consists **of a hollow tube, easier to clean than porous materials, to block during a fermentation all.**
- 17) Foam is typically detected using two **conductivity or "level" probes**.
- 18) The pH control system consists of except **basic delivery system**,
- 19) Sterilization is the removal or destruction of **all living microorganisms**.
- 20) **Heating** is the most common method used for killing microbes, including the most resistant forms, such as endospores.
- 21) Media may be sterilized by **filtration, radiation, ultrasonic treatment**.
- 22) The relationship between temperature and the reaction rate constant was demonstrated by **Arrhenius**.

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- 23) Deindoefer and Humphrey (1961) the specific death rate of *B. stearothermophilus* spores at  $121^{\circ}\text{C}$  is  $2.54 \text{ min}^{-1}$
- 24) if a pilot sterilization were carried out in a 1000 dm<sup>3</sup> vessel with a medium containing  $10^6$  organisms  $\text{cm}^{-3}$  requiring a probability of contamination of 1 in 1000, the Del factor would be: **34.5**.
- 25) which is not Advantages of continuous sterilization over batch sterilization.
- 26) which is not Advantages of batch sterilization over continuous sterilizationii. **Easier automatic control.**
- 27) **Richards** (1968) demonstrated the use of a graphical method of integration
- 28) **Filter2** is 0.5 micro meter absolute rated pre filter for bulk bioburden removal,
- 29) The most common construction material used for the pleated membranes for air sterilization is **Polytetrafluoroethylene (PTFE)**, which is hydrophobic and is therefore resistant to wetting.
- 30) The main objective of the first stage for the recovery of an extracellular product is the removal of large solid particles and microbial cells usually by **centrifugation or filtration**.
- 31) solid matter, 80% of the degradable matter may be digested, which will reduce the solids content by **50%**. Baki ni likhay gaye
- 32) 2. What is Sterilization? 2
- 33) The main objective of the first stage for the recovery? 2
- 34) Equation for overall Del factor? 2
- 35) Function of compressor? 3
- 36)  $X_t/X_o = e^{-kt}$ , define  $x_t$  and  $kt$ ? 3
- 37) Why Bottom entry agitators tend to require more maintenance than top entry impeller
- 38) 6 basic suggestions to consider site for treating industrial waste? 3
- 39) Richards' RAPID METHOD FOR DESIGNING OF STERILIZATION CYCLES? 5
- 40) Roffler et al. (1984) techniques 5 mrks
- 41) Q7: Briefly discuss batch and continuous culture. (5)
- 42) Explain in detail the recovery and purification of fermenter products.(10)