RSGSML Bio Chemical Energy Questions and Answers

1. A competitive inhibitor of an enzyme is usually

A.a highly reactive compound
B.a metal ion such as Hg2+ or Pb2+
C.structurally similar to the substrate.
D.water insoluble

Answer: C

2. Linear inhibition is sometimes called as

A.complete inhibition
B.incomplete inhibtion
C.partial inhibition
D.mixed inhibition

Answer: A

3. The types of inhibition pattern based on Michaelis Menten equation are

A.competitive
B.non-competitive
C.uncompetitive
D.all of the above

Answer: D

4. The effect of non-competitive inhibition on a Lineweaver-Burk Plot is that

A.it can move the entire curve to the right
B.it can change the y-intercept
C.it can change the x-intercept
D.all of these

Answer: B

5. The rate-determining step of Michaelis Menten kinetics is

A.the complex formation step
B.the complex dissociation step to produce product
C.the product formation step
D.Both (a)and(c)

Answer: B

6. In competitive inhibition a factor is obtained from the measurement of

A.Vmax
B.KM
C.Y-intercept in Lineweaver-Burk Plot
D.None of these

Answer: B

7. Which of these proteases is not a cysteine active site protease?

A.Calpain
B.Cathepsin D
C.Papain
D.None of the above

Answer: B

8. Given an enzyme with a Km = 10m M and Vmax = 100 m mol/min. If [S] = 100 m M, which of the following will be true?

A.A 10 fold increase in Vmax would increase velocity 10 fold y
B.A 10 fold decrease in Km would increase velocity
C.Both (a) and (b)
D.A 10 fold increase in Vmax would decrease velocity 20 fold

Answer: A

9. The conformational change in an enzyme after the substrate is bound that allows the chemical reaction to proceed, can be explained by

A.induced fit

B.transition
C.fit and fine
D.Pasteur

Answer: A

10. The active site of an enzyme remains

A.at the center of globular proteins
B.rigid and does not change shape
C.complementary to the rest of the molecule
D.none of the above

Answer: D

11. The maximum desirable limit Bureau of Indian Standards (BIS) of lead in the drinking water is

A.0.05 mg/l
B.0.09 mg/l
C.0.1 mg/l
D.1.0 mg/l

Answer: A

12. Zeolite softening process removes

A.only temporary hardness of water
B.only permanent hardness of water
C.both temporary and permanent hardness of water
D.the dissolved gases in permanent hard water

Answer: C

13. Conventional tertiary treatment is

A.chemical coagulation and flocculation

B.filtration
C.sedimentation
D.none of these

Answer: A

14. The maximum desirable limit (BIS) of total hardness (as CaCo3) in drinking water is

A.600 ppm
B.300 ppm
C.500 ppm
D.1000 ppm

Answer: B

15. The chemical oxygen demand (COD)measures the

A.amount of oxygen required for growth of microorganisms in water
B.amount of oxygen that would be removed from the water in order to oxidize pollution
C.amount of oxygen required to oxidize the calcium present in waste water
D.none of the above

Answer: B

16. Which of the following physical method is used as germicidal in modern time for the treatment of drinking water?

A.Chlorination
B.Treating with potassium permagnate
C.UV radiation
D.Treating with bleaching powder

Answer: C

17. Sanitizer used specifically for vitreous enamel are

A.strong alkalis
B.strong acids
C.weak alkali with sodium silicate

D.none of these

Answer: C

18. The common methods used for disinfection in waste water treatment plants are

A.chlorination
B.UV light
C.both (a) and (b)
D.Phenolic solvent

Answer: C

19. Inhibitors are used along with sanitizer to

A.improve their action
B.to prevent corrosion
C.both (a) and (b)
D.none of these

Answer: B

20. Sanitizers used for rubber made equipments are

A.strong acids
B.strong alkalis
C.combination of both
D.none of these

Answer: B

21. Which of the following substances are commonly used in a filter?

A.Charcoal
B.Sand
C.Both (a) and (b)
D.Aluminum chloride

Answer: C

RSGSML Bio Chemical Energy Questions and Answers

22. Biological oxidation processes usually referred as biological treatment, are the most common form of

A.primary treatment
B.secondary treatment
C.tertiary treatment
D.all of these

Answer: B

23. The maximum permissible limit (BIS) of turbidity in drinking water is

A.5 NTU
B.10 NTU
C.15 NTU
D.20 NTU

Answer: B

24. Sedimentation is a physical process used in wastewater treatment to

A.remove particles that are less dense than water
B.remove particles that are more dense than water
C.remove the pertinacious material from the water
D.none of the above

Answer: B

25. The ultimate source of water is

A.rivers and lakes
B.dew and forest
C.rain and snow
D.underground and surface

Answer: C

26. The sterilization method depends

A.nature of additive
B.volume and feed rate
C.both (a) and (b)
D.none of these

Answer: C

27. The specific death rate of an organism can be expressed as

A.ln 2/D
B.D/ln2
C.D.ln2
D.2.0.3/ln2

Answer: A

28. The interception efficiency can be expressed as (where dp is the particle diameter and Dc cylindrical collection diameter)

A.dp/Dc
B.dp x Dc
C.dp/Dc x 100
D.dpDc/100

Answer: A

29. The relationship between the del factor, temperature and time is given as

A.Δ = A.t. e-E/RT
B.Δ = 1/(A.t. e-E/RT)
C.Δ = A.t. eE/RT
D.Δ = A.t.T

Answer: A

30. The del factor (Δ) increases as the final number of cells

A.decreases

B.increases
C.zero
D.constant

Answer: A