Package Title: Test Bank
Course Title: Wessner 2e
Chapter Number: 2

Question Type: Multiple Choice

1) What is the typical length of a bacterium?

a) 5 – 10 nm
b) 0.5 – 5 µm
c) 20 – 40 µm
d) 5 – 10 mm
e) 20 – 40 mm

Answer: b

Difficulty: Easy
Learning Objective: LO 2.1 Describe the shape, multicellular arrangement and general sizes of common bacteria.

2) Which term describes straight, rod-shaped bacteria?

a) cocci
b) bacilli
c) spirilla.
d) vibrios.
e) pleiomorphs

Answer: b

Difficulty: Easy
Learning Objective: LO 2.1 Describe the shape, multicellular arrangement and general sizes of common bacteria.

3) Which bacterial species would you expect to display pleomorphism?

a) Actinomycetes
b) Mycoplasma
c) Cyanobacteria
d) Streptococcus
e) Staphylococcus

Answer: b

Difficulty: Medium
Learning Objective: LO 2.1 Describe the shape, multicellular arrangement and general sizes of common bacteria.

4) Within a population of E. coli cells, you frequently observe rod-shaped cells that are significantly larger than the rest. This species is not known to be pleomorphic. Which is the most likely explanation for your observation?

a) Cells are different because nutritional needs are not being met
b) Cells are at different stages of growth before binary fission
c) Cells are contaminated with *Staphylococcus*
d) Cells have lost their cell walls\
e) Cells have lost their plasma membranes

Answer: b

Difficulty: Hard
Learning Objective: LO 2.1 Describe the shape, multicellular arrangement and general sizes of common bacteria.

5) The so-called ultra-small bacteriawill likely have a diameter approximating

a) 1 micrometer
b) 1.5 micrometers
c) 0.15 micrometers
d) 0.5 micrometers
e) 0.015 micrometers

Answer: c

Difficulty: Hard
Learning Objective: LO 2.1 Describe the shape, multicellular arrangement and general sizes of common bacteria.

6) Given the size of a typical ribosome, how many would you expect to find inside an ultra-small bacterium?

a) a single ribosome
b) 5-20 ribosomes
c) 50-100 ribosomes
d) 100–200 ribosomes

e) 500-1000 ribosomes

Answer: b

Difficulty: Hard
Learning Objective: LO 2.1 Describe the shape, multicellular arrangement and general sizes of common bacteria.

7) Given the size of a typical ribosome, how many would you expect to find inside in a *Mycoplasma* cell?

a) A single ribosome
b) 5-20 ribosomes
c) 50-100 ribosomes
d) 100-200 ribosomes
e) 500-1000 ribosomes

Answer: c

Difficulty: Medium
Learning Objective: LO 2.1 Describe the shape, multicellular arrangement and general sizes of common bacteria.

8) Which region contains the chromosome in the bacterial cell?

a) Nucleus
b) Nucleoid
c) Plasmid
d) Plastid
e) Prophage

Answer: b

Difficulty: Easy
Learning Objective: LO 2.2 Describe the nucleoid and the components of bacterial cytoplasm.

9) Which is an example of an "inclusion body" found in a bacterial cell?

a) the nucleus
b) the mitochondria
c) a topoisomerase
d) the cell membrane

e) polyhydroxybutyrate

Answer: e

Difficulty: Easy
Learning Objective: LO 2.2 Describe the nucleoid and the components of bacterial cytoplasm.

10) Sulfur globules are an example of inclusion bodies that may be found in some bacterial cells. What is their use?

a) They are a carbon source
b) They are used for nucleotide synthesis
c) As an energy source
d) They provide buoyancy
e) They assist in membrane synthesis

Answer: c

Difficulty: Medium
Learning Objective: LO 2.2 Describe the nucleoid and the components of bacterial cytoplasm.
Section Reference: Section 2.2 The cytoplasm

11) How are gas vesicles used by bacterial cells?

a) As a source of oxygen for aerobic respiration
b) As a source of nitrogen for protein synthesis
c) As a source of hydrogen for reductive reactions
d) For assistance with photosynthesis
e) As an energy source

Answer: d

Difficulty: Medium
Learning Objective: LO 2.2 Describe the nucleoid and the components of bacterial cytoplasm.

12) The bacterial chromosome is a highly condensed structure that is tightly wound up around itself to fit into the bacterial cell. What is the main enzyme responsible for condensing the DNA?

a) DNA polymerase
b) DNA ligase
c) DNA topoisomerase
d) DNA endonuclease
e) DNA synthetase

Answer: c

Difficulty: Easy
Learning Objective: LO 2.2 Describe the nucleoid and the components of bacterial cytoplasm.

13) Carboxysomes play a role in:

a) energy release
b) aerobic respiration
c) anaerobic respiration
d) buoyancy control
e) carbon fixation

Answer: e

Difficulty: Medium
Learning Objective: LO 2.2 Describe the nucleoid and the components of bacterial cytoplasm.

14) What would you expect to be a molecular property of the proteinaceous wall surrounding *Microcystis* vesicles which are gas, but not water, permeable?

a) strongly negatively charged
b) strongly positively charged
c) hydrophobic in nature
d) hydrophilic in nature
e) none of these choices is correct

Answer: c

Difficulty: Hard
Learning Objective: LO 2.2 Describe the nucleoid and the components of bacterial cytoplasm.

15) What is the main function of the FtsZ protein in the bacterial cell?

a) DNA replication
b) transcription
c) translation
d) cell division
e) meiosis

Answer: d

Difficulty: Easy
Learning Objective: LO 2.3 Describe the functions of the bacterial cytoskeleton and other protein-based structural elements in the bacterial cell.

16) The MreB protein in bacteria may play an important role in:

a) determining cell shape
b) motility
c) energy metabolism
d) meiosis
e) nuclear division

Answer: a

Difficulty: Medium
Learning Objective: LO 2.3 Describe the functions of the bacterial cytoskeleton and other protein-based structural elements in the bacterial cell.

17) What is the role of the ParM protein in bacteria?

a) Determination of cell shape.
b) To segregate plasmids to each cell during cell division.
c) To assist in carrying out meiosis.
d) In cell movement during chemotaxis.
e) In sugar and protein metabolism.

Answer: b

Difficulty: Medium
Learning Objective: LO 2.3 Describe the functions of the bacterial cytoskeleton and other protein-based structural elements in the bacterial cell.

18) What protein plays an important role in determining cell shape by directing cell wall synthesis in non-spherical bacteria?

a) FtsZ
b) MreB
c) ParM
d) FlaA
e) PepZ

Answer: b

Difficulty: Easy
Learning Objective: LO 2.3 Describe the functions of the bacterial cytoskeleton and other protein-based structural elements in the bacterial cell.

19) The plasmid region where ParR attaches would be the eukaryal (mitotic) equivalent of :

a) telomere
b) chromatid
c) centromere
d) spindle
e) chromosome

Answer: c

Difficulty: Hard
Learning Objective: LO 2.3 Describe the functions of the bacterial cytoskeleton and other protein-based structural elements in the bacterial cell.

20) The mitotic equivalent activity to the plasmid separation achieved by ParM is:

a) interphase
b) prophase
c) anaphase
d) telophase
e) cytokinesis

Answer: c

Difficulty: Hard
Learning Objective: LO 2.3 Describe the functions of the bacterial cytoskeleton and other protein-based structural elements in the bacterial cell.

21) On which other cytoskeletal protein does ParM activity appear to depend?

a) ftsZ polymer
b) ftsZ monomer
c) ParR
d) mreB polymer
e) mreB monomer

Answer: c

Difficulty: Medium
Learning Objective: LO 2.3 Describe the functions of the bacterial cytoskeleton and other protein-based structural elements in the bacterial cell.

22) What structure might you expect the MamJ protein to possess?

a) at least one highly negatively charged region
b) at least one highly positively charged region
c) at least one lipophilic region
d) at least one hydrophilic region
e) none of these characteristics is relevant

Answer: c

Difficulty: Hard
Learning Objective: LO 2.3 Describe the functions of the bacterial cytoskeleton and other protein-based structural elements in the bacterial cell.

23) Which best describes the chemical structure of the Bacteria domain cytoplasmic membrane ?

a) A bilayer of phospholipids.
b) A monolayer of phospholipids.
c) A monolayer of phospholipids with sterols.
d) A bilayer of phospholipids with sterols.
e) A trilayer of phospholipids.

Answer: a

Difficulty: Easy
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

24) Some bacteria produce sterol-like molecules called ___ that help to stabilize the plasma membrane.

a) ergosterol
b) progesterone
c) hopanoids
d) phycols
e) stigmasterols

Answer: c

Difficulty: Easy
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

25) Which statement is FALSE in regards to the plasma membrane?

a) Glucose cannot easily diffuse across the plasma membrane.
b) Protons can easily diffuse across the plasma membrane.
c) Oxygen can easily diffuse across the plasma membrane.
d) Water can easily diffuse across the plasma membrane.
e) Potassium ions cannot easily diffuse across the plasma membrane.

Answer: b

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

26) If cells are placed into a hypertonic solution, what reaction would you expect?

a) The cell would lose water.
b) The cell would gain water.
c) The cell would pump out ions.
d) The cell would lyse.
e) The cell would increase in size.

Answer: a

Difficulty: Easy
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

27) What conditions must exist for an “active transport system” to transport nutrients into a cell?

a) The nutrient concentration must be higher on the outside of the cell.
b) The nutrient concentration must be lower on the inside of the cell.
c) The nutrient concentration must be equal inside and outside of the cell.
d) Passive diffusion needs to drive this transport.
e) Some form of energy is required for proper transport.

Answer: e

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

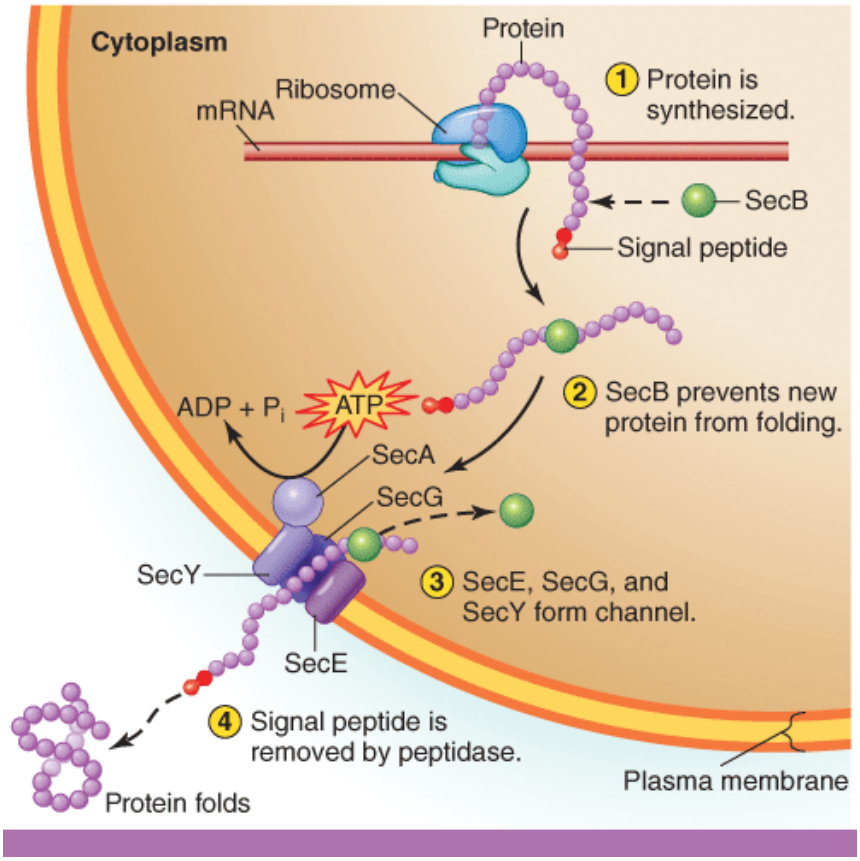
28) What is a signal peptide?

a) The amino acid sequence of a protein that detects changes in the external environment and signals this change to components in the cell.
b) A regulatory protein that turns on/off the expression of certain genes.
c) A protein used to signal cell division.
d) A short amino acid sequence on the end of a protein that is used for transport of the protein out of the cell.
e) A protein in the cytoplasmic membrane that is used to communicate with other closely related cells.

Answer: d

Difficulty: Easy
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

29) Which of the following terms would best summarize the function of the general secretory pathway shown in Fig2.13?

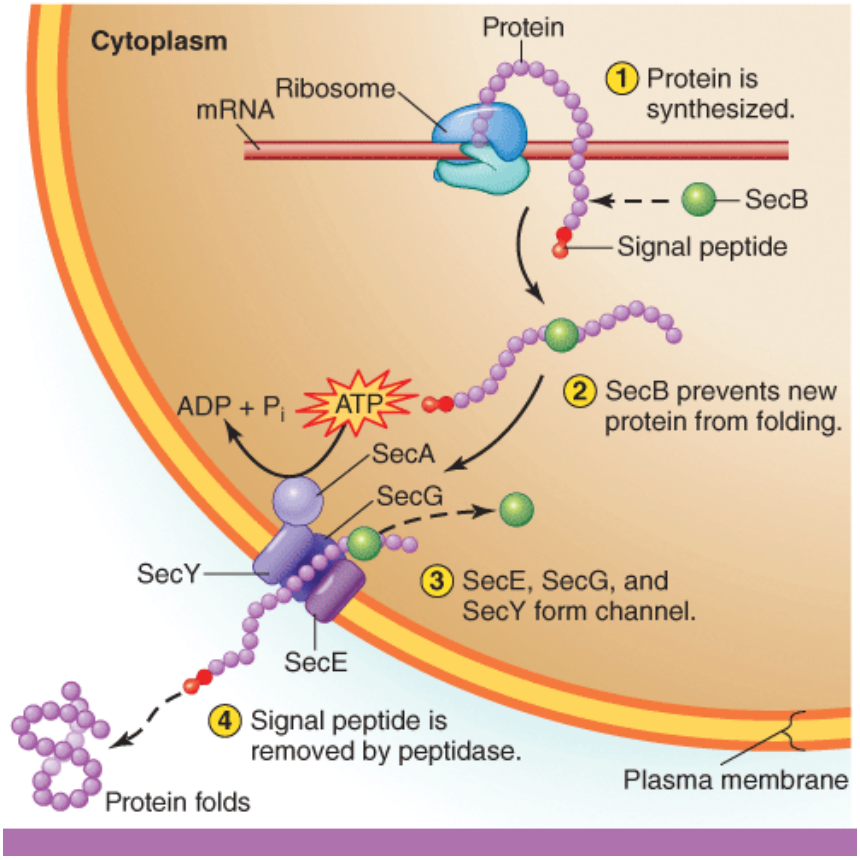


a) translocase
b) transacetylase
c) peptide entry facilitation
d) transaminase
e) none is appropriate

Answer: a

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

30) Which protein shown in this figure can be termed a molecular chaperone?



a) SecA
b) SecB
c) ATPase
d) SecY
e) SecE

Answer: b

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

31) Which is the major component of the cell wall of microbes in the Bacteria domain?…

a) cellulose
b) chitin
c) protein
d) polysaccharide
e) peptidoglycan

Answer: e

Difficulty: Easy
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

32) The glycan portion of peptidoglycan is composed of alternating units of which two compounds?

a) glucose and fructose
b) N-acetylmuramic acid and N-acetylglucosamine
c) N-acetylmannose and N-acetylglucose
d) N-acetylfructose and N-acetylglucose
e) N-acetylmannitol and N-acetylsorbitol

Answer: b

Difficulty: Easy
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

33) What is the main function of peptidoglycan?

a) Controlling movement of nutrients into and out of the cell.
b) Protecting the cell from harmful chemicals.
c) Regulating the transport of water into the cell.
d) Protecting against osmotic stress.
e) Generating energy through electron transport phosphorylation.

Answer: d

Difficulty: Easy
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

34) What is the reaction of β-lactamase enzymes?

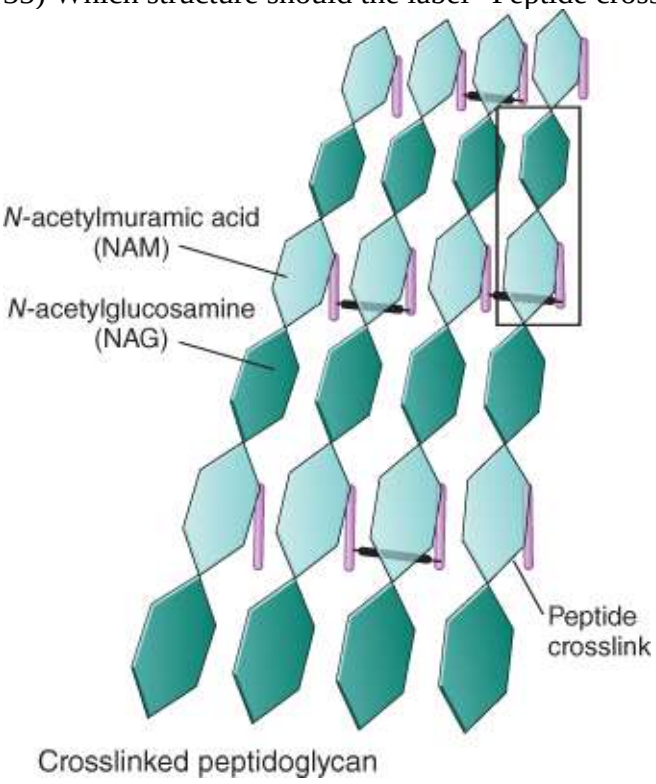
a) Hydrolyze the glycan chain of peptidoglycan.
b) Hydrolyze crosslinks between amino acid chains formed in peptidoglycan
c) Inactivate antibiotics like penicillin.
d) Inactivate the enzyme lysozyme.

e) Prevent the transpeptidation reaction during peptidoglycan synthesis.

Answer: c

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.
Section Reference: Section 2.4 The cell envelope

35) Which structure should the label “Peptide crosslink” be pointing to?

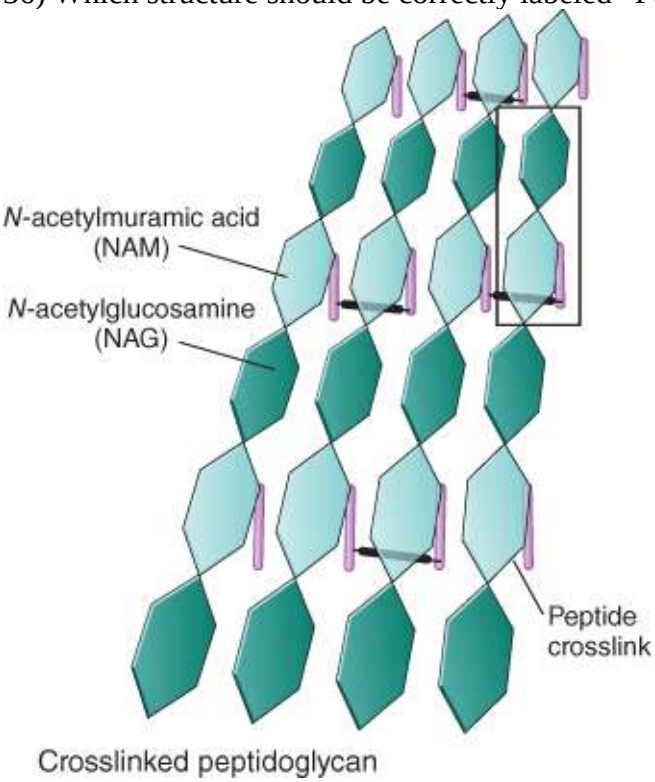


a) Light green hexagon
b) Dark green hexagon
c) Pink vertical structure
d) Black horizontal structure
e) None of these choices is correct

Answer: d

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

36) Which structure should be correctly labeled “Peptide chain”?



a) light green hexagon
b) dark green hexagon
c) pink vertical structure
d) black horizontal structure
e) none is a correct choice

Answer: c

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

37) Which compound binds the outer membrane of Gram-negative bacteria to the thin peptidoglycan layer?

a) lipoproteins
b) lipoteichoic acid
c) porin
d) bactoprenol

e) polysaccharide

Answer: a

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

38) Clavulanic acid can be seen to act in which manner to augment penicillin activity?

a) It molecularly links to penicillin to increase its effectiveness
b) It acts as a competitive inhibitor of beta lactamase
c) It acts indirectly to alter peptide crosslinks and strengthen the cell wall
d) It acts as a non-competitive inhibitor of lysozyme
e) It strengthens the glyan covalent linkages

Answer: b

Difficulty: Hard
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

39) One feature of the peptidoglycans found in E. coli and Staphylococcus which correlates positively with the relative thickness of the layers found in Gram positive and Gram negative cells is the;

a) Structure of the glycan layer
b) Length of the peptide chains
c) Length of the peptide crossbridges
d) Amino acid sequence of the peptide chains
e) Amino acid sequence of the peptide crossbridges

Answer: c

Difficulty: Hard
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

40) The differential step in the Gram stain is:

a) the application of crystal violet
b) the application of the iodine mordant
c) the alcohol wash step
d) application of safranin red dye

e) none is considered differential

Answer: c

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

41) Which of these gene products appears to confer a survival advantage on bacteria living in a competitive environment?

a) TonB dependent receptors
b) TonB
c) Flagellin
d) ExbB
e) ExbD

Answer: a

Difficulty: Hard
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

42) In Type III secretion, which protein seems to mimic flagellin?

a) the protein being exported
b) the cytoplasmic component of the Type III secretion complex
c) the transmembrane component of the Type III secretion complex
d) the syringe-like component of the Type III secretion complex
e) none is a comparable protein

Answer: a

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

43) The bacterial flagellum is turned by a motor using energy from:

a) ATP.
b) glucose.
c) a proton motive force.
d) phosphoenolpyruvate.

e) AMP.

Answer: c

Difficulty: Medium
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.

44) Which of these describes the peritrichous arrangement of flagella?

a) Flagella all around the cell.
b) Flagella at both polar ends of the cell.
c) Flagella in a tuft at one end of the cell.
d) Flagella inside the periplasm wrapping around the cell.
e) Flagella on a single side of the cell.

Answer: a

Difficulty: Easy
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.

45) What are short fiber-like structures that protrude from the bacterial surface and are primarily used for attachment called?

a) pili
b) flagellin
c) porins
d) bactoprenol
e) lipopolysaccharides

Answer: a

Difficulty: Easy
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.

46) What is the function of the bacterial capsule?

a) Attachment.
b) Preventing phagocytosis by phagocytic cells.
c) Resisting desiccation.
d) All of these choices.

e) None of these choices.

Answer: d

Difficulty: Easy
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.

47) Which of the bacterial behaviors described seems most similar to the differentiation observed in *Caulobacter* growth?

a) *Proteus* swarming
b) *E. coli* intestinal attachment
c) *Treponema* movement with axial filaments
d) Streptococcal capsule formation
e) E. coli TonB dependent receptor active transport

Answer: a

Difficulty: Hard
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.

48) What is the major difference between the strategies of *Caulobacter* and *Proteus* in nutrient acquisition?

a) *Caulobacter* increases its own cell surface area while *Proteus* covers more nutrient-containing surface area to improve nutrient absorption
b) *Proteus* increases its own cell surface area while *Caulobacter* covers more nutrient-containing surface area to improve nutrient absorption
c) *Caulobacter* uses pili to attach to new surface areas while *Proteus* uses axial filaments for enhanced motility
d) *Proteus* uses pili to attach to new surface areas while *Caulobacter* uses axial filaments for enhanced motility
e) None is a correct statement

Answer: a

Difficulty: Medium
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.

49) Which of these constitue valid reasons why actin polymer formation by *Shigella* should be considered as a strong virulence factor?

a) Actin can propel bacterial cells from one side of a host cell to another
b) Actin polymers allow bacteria to invade an epithelial sheet without immune cell exposure
c) Actin polymer formation adheres bacterial cells to host cells
d) Actin polymers trigger the expression of host defenses
e) None is a valid reason to consider actin polymer formation as a virulence factor

Answer: b

Difficulty: Medium
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.

50) Select the structure and assocated function which is *incorrect*:

a) Pili, motility
b) Flagella, motility
c) Capsule, attachment
d) Pili, attachment
e) Porin, attachment

Answer: e

Difficulty: Medium
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.

51) Select the structure and assocated function which is *incorrect*:

a) S-layer, protection
b) Capsule, protection
c) Peptidoglycan, protection
d) Flagella, protection,
e) TonB, diffusion

Answer:e

Difficulty: Medium
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.

52) All of the following are taxonomic groups used to classify bacteria EXCEPT:

a) Kingdom.
b) Phylum.
c) Class.
d) Family.
e) Genus.

Answer: a

Difficulty: Easy
Learning Objective: LO 2.6 Explain the basic rules of taxonomy and Systematics used to identify bacteria.

53) Which phyla contain photosynthetic bacteria? (Select all that apply)

a) Proteobacteria
b) Cyanobacteria
c) Firmicultes
d) Deinococcus
e) Actinobacteria

Answer: a, b

Difficulty: Medium
Learning Objective: LO 2.6 Explain the basic rules of taxonomy and Systematics used to identify bacteria.

Question type: Multiple Select

54) Suggest a survival advantage for cyanobacterial filaments compared with the single celled growth pattern seen for cultures such as *E. coli*: (Select all that apply)

a) nutrients may be shared down the length of a filament
b) nutrient loss may occur along the filament length
c) intercellular communication may allow all cells to synthesize key enzymes
d) intercellular communication leads to differentiation of cell types
e) none is a possible advantage

Answer: a, c

Difficulty: Medium

Learning Objective: LO 2.1 Describe the shape, multicellular arrangement and general sizes of common bacteria.

55) An advantage of polyhydroxybutyrate use in plastics is: (Select all that apply)

a) reduced dependence on petroleum products
b) the likelihood of biodegradability
c) cheaper manufacture
d) potential upcycling of other organic molecules dduring the plastic manufacture
e) less biomass generation

Answer: a, b, c, d

Difficulty: Hard
Learning Objective: LO 2.2 Describe the nucleoid and the components of bacterial cytoplasm.

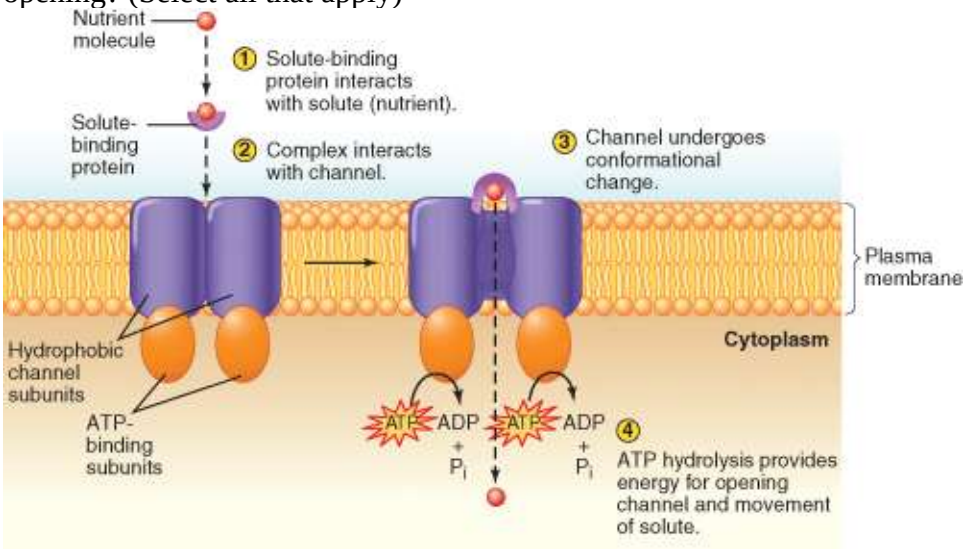
56) The proton motive force (PMF) across a cell membrane can be used for which of these processes?

a) Generate ATP.
b) Propel the flagella.
c) symport
d) antiport
e) lowering pH outside the cell membrane

Answer: a, b, c, d

Difficulty: Hard
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

57) Which of the molecule(s) shown in this figure is exerting an allosteric effect on channel opening? (Select all that apply)



a) nutrient
b) solute binding protein
c) hydrophobic protein unit
d) ATP binding protein unit
e) None is acting allosterically

Answer: a, b, c

Difficulty: Hard
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

58) SecB is a highly acidic protein. How is this characteristic likely to assist in its role as molecular chaperone? (Select all possibilities)

a) The negative charges may interfere with formation of alpha helices and beta sheets in the peptide being translocated
b) The positive charges may interfere with formation of alpha helices and beta sheets in the peptide being translocated
c) SecA may be a basic protein
d) SecYEG may be a basic protein complex
e) SecA may be an acidic protein

Answer: a, c

Difficulty: Hard
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

59) Mutations occur in proteins of the general secretory pathway. Which bacterial regions may be deprived of key proteins? (Select all that apply)

a) Plasma membrane
b) Cytoplasm
c) Gram negative outer membrane
d) Periplasmic space
e) Nucleoid

Answer: a, c, d

Difficulty: Hard
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

60) A mutation alters amino acids in SecA of the general secretory pathway. Which proteins may no longer be able to interact within the pathway because of the SecB structural change? (Select all that apply)

a) SecB
b) ATPase
c) SecY
d) SecG
e) SecE

Answer: a, b, c, d, e

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

61) A mutation alters amino acids in SecB of the general secretory pathway. Which proteins may no longer be able to interact within the pathway because of the SecB structural change? (Select all that apply)

a) SecA
b) ATPase
c) SecY
d) SecG
e) SecE

Answer: a

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

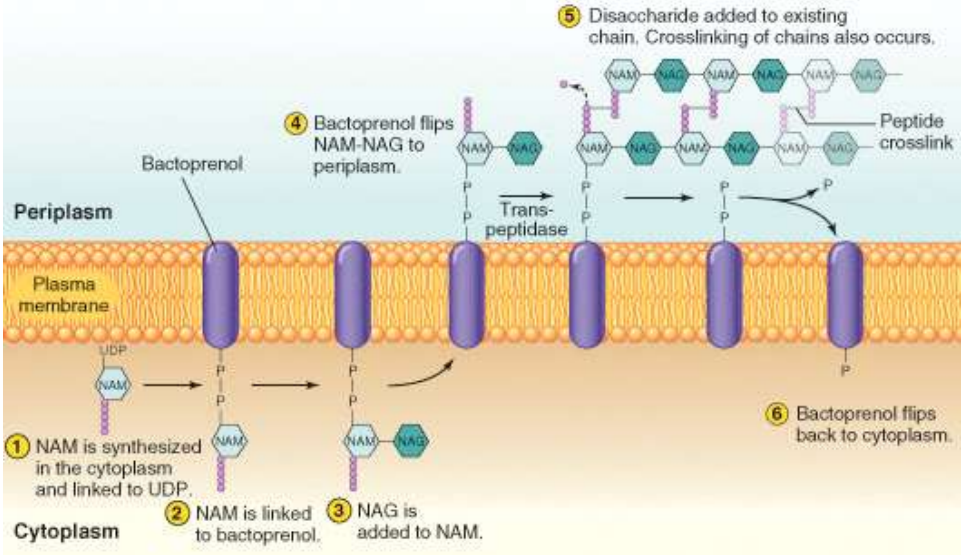
62) General secretory pathway proteins SecYEG must contain protein domains which are: (Select all that apply)

a) Acidic
b) Basic
c) Lipophilic
d) Hydrophilic
e) Hydrophobic

Answer: c, e

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

63) Which of these molecules has been modified by kinase activity? (Select all that apply)



a) NAM
b) UDP
c) Bactoprenol
d) Transpeptidase
e) None is a correct choice

Answer: a, c

Difficulty: Hard
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

64) Identify the correctly paired peptidoglycan targets and their detroyers: (Select all that apply)

a) NAG-NAM linkages and lysozyme
b) NAG-NAM linkages and penicillin
c) Polyglycine peptide crossbridges and lysostaphin
d) Polyglycine peptide crossbridges and penicillin
e) Amino acid crossbridges in E. coli peptidoglycan and penicillin

Answer: a, c

Difficulty: Hard
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

65) Identify the correctly paired peptidoglycan targets and their detroyers: (Select all that apply)

a) Polyglycine peptide crossbridges and lysozyme
b) Peptidoglycan crosslinking enzymes and penicillin
c) NAG-NAM linkages and penicillin
d) NAG-NAM linkages and lysostaphin
e) NAG-NAM linkages and lysozyme

Answer: b, e

Difficulty: Hard
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

66) Which of these molecules can elicit strong inflammatory host responses? (Select all that apply)

a) lipoteichoic acid
b) lipopolysaccharide lipid A
c) NAG-NAM glycan chains
d) Pentaglycine peptides
e) Lipopolysaccharide O side chains

Answer: a, b, e

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

67) Which of these molecules will be lysozyme resistant? (Select all that apply)

a) lipoteicheoic acid
b) lipopolysaccharide lipid A
c) NAG-NAM glycan chains
d) Pentaglycine peptides
e) Lipopolysaccharide O side chains

Answer: a, b, d, e

Difficulty: Medium
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

68) Which findings suggest most strongly that the phyla illustrated in Fig. 2.36 may be reorganized and revised in future years?

a) There are 2 phyla of Gram positive bacteria
b) Walless bacteria exist in phylum Firmicutes
c) Proteobacteria consists of five classes while all other phyla have a single class
d) Deinococcus and Actinobacteria share a common ancestor
e) Photosynthetic bacteria are in multiple classes

Answer: e

Difficulty: Hard
Learning Objective: LO 2.6 Explain the basic rules of taxonomy and Systematics used to identify bacteria.

Question Type: True/False

69) The ABC transporter system uses phosphoenolpyruvate as the energy source to drive transport.

Answer: False

Difficulty: Easy
Learning Objective: LO 2.4 Identify the components of the bacterial cytoplasmic membrane and cell wall, and the functions of these structures.

70) The bacterial flagellum is structurally and functionally related to the eukaryotic flagellum.

Answer: False

Difficulty: Medium
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.
Section Reference: Section 2.5 The bacterial cell surface

Question Type: Text Entry

71) Short hair-like protrusions on the surface of some bacterial cells, used primarily for attachment but occasionally for motility, are called ___ .

Answer: pili

Difficulty: Medium
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.
Section Reference: Section 2.5 The bacterial cell surface

72) _____ motility is used by myxobacteria and some cyanobacteria for smooth movement across a solid surface.

Answer: Gliding

Difficulty: Medium
Learning Objective: LO 2.5 Explain how complex protein structures on the bacterial cell surface allow for motility and interaction with the environment.
Section Reference: Section 2.5 The bacterial cell surface