



Kingdom of Saudi Arabia

Taibah University

Deanery of Academic Services

Subject Biol 101

Midterm Exam First semester

1) What do the starch granules do in a plant cell?

- A. **starch granules are responsible for storage**
- B. starch granules are responsible for photosynthesis
- C. starch granules are responsible for respiration
- D. none of the above

2) Which one of the following is associated with energy generation in cells?

- A. **mitochondria**
- B. chloroplast
- C. ribosomes
- D. Lysosome

3) The major components of cell membranes are the:

- A. proteins
- B. carbohydrates
- C. phospholipids**
- D. Cholesterol

4) What type of lipids are the sex hormones (testosterone and estradiol)?

- A. Steroids**
- B. Fatty acids
- C. Phospholipids
- D. None of the above is correct

5) Which one of the following is NOT an organelle?

A. mitochondria

B. RNA

C. golgi complex

D. Lysosomes

6) Osmosis is:

A) It involves movement of solvent molecules

B) Molecules move from low concentration to high concentration

C) It occurs only across a semi-permeable membrane

D) All of the above

7) Plants synthesise protein from

A. starch

B. sugars

C. amino acids

D. fatty acids

8) A _____ is a biologist dedicated to naming, describing, and classifying organisms.

A. Ecologist

B. Physician

C. Taxonomist

D. Physiologist

9) Which type of cell would probably provide the best opportunity to study lysosome?

A. Muscle cell

B. Nerve cell

C. Phagocyte white blood cell

D. Bacterial cell

10) Which atoms are always found in organic molecules?

A. carbon and hydrogen

B. carbon and oxygen

C. carbon and nitrogen

D. oxygen and nitrogen

11) Which group is present in alcohols?

A. Hydroxyl (OH)

B. Carbonyl (C=O)

C. Carboxyl (COOH)

D. Methyl (CH₃)

12) Which of the following structure-function pairs is mismatched?

A. microtubule-muscle contraction

B. lysosome-intracellular digestion

C. ribosome-protein synthesis

D. Golgi-protein trafficking

13) The backbone of the DNA is made of:

- A. sugar-phosphate**
- B. nitrogenous base
- C. sugar-nitrogenous base
- D. phosphate-nitrogenous base

14) In DNA, adenine (A) pairs with:

- A. Uracil (U)
- B. cytosine (C)
- C. guanine (G)
- D. thymine (T)**

15) Lipids

- A. do not mix with water
- B. insoluble in water
- C. hydrophobic
- D. All of the above**

17) Which of the following structures is common to plant *and* animal cells?

- A. chloroplast
- B. wall made of cellulose
- C. tonoplast
- D. **Mitochondrion**

18) _____ is the process of splitting of a bond within a larger molecule by the addition of water.

- A. Phosphorylation
- B. Dehydration
- C. Diffusion
- D. **Hydrolysis**

19) _____ is the process in which water is removed when two monomers join to form a macromolecule.

A. Hydrolysis

B. Dehydration

C. Osmosis

D. Diffusion

20) Which type of lipid has four fused carbon rings?

A. Cholesterol

B. Triglyceride

C. Phospholipid

D. Maltose

21) What is the final three-dimensional shape of a protein called?

A. quaternary structure

B. tertiary structure

C. secondary structure

D. primary structure

22) What are the components of a nucleotide?

- A. glucose, cholesterol, triglyceride
- B. phosphate, glucose, fatty acid
- C. phosphate, hexose sugar, nitrogen-containing base
- D. phosphate, pentose sugar, nitrogen-containing base**

23) "TEM" refers to a photomicrograph taken by a _____.

- A. light microscope
- B. transmission electron microscope**
- C. scanning electron microscope
- D. scanning-probe microscope

24) Which of the following organelles is the largest and most easily observed with the light microscope?

- A. Mitochondria
- B. Chloroplast
- C. Nucleus**
- D. Lysosomes

25) _____ is/are the site of protein synthesis in the cytoplasm.

A. Smooth endoplasmic reticulum

B. Golgi apparatus

C. Ribosomes

D. Lysosomes

26) The _____ function(s) in the packaging, storage, and distribution of molecules produced by the ER.

A. Golgi apparatus

B. Peroxisomes

C. Smooth endoplasmic reticulum

D. mitochondria

27) _____ is a green pigment found within grana that makes chloroplasts and leaves green.

- A. Cellulose
- B. Ribosomal RNA
- C. Hemoglobin
- D. Chlorophyll**

28) The structure of flagella is most similar to that of _____.

- A. Cilia**
- B. basal bodies
- C. microvilli
- D. rough endoplasmic reticulum

29) Which of the following describes the fluid-mosaic model of the plasma membrane structure?

- A. phospholipid monolayer with embedded proteins
- B. phospholipid bilayer with embedded proteins**
- C. phospholipid trilayer with embedded proteins
- D. triglyceride bilayer with embedded proteins

30) Pinocytosis is a type of _____.

A. Endocytosis

B. Exocytosis

C. simple diffusion

D. facilitated diffusion

31) _____ is the net movement of any type of molecule from a region of higher concentration to a region of lower concentration.

A. simple diffusion

B. osmosis

C. active diffusion

D. Pinocytosis

32) A dye is dissolved in water. The _____ is the solute and the solvent is the _____ molecules.

A. water, dye

B. dye, water

C. dye, dye

D. water, water

33) Energy of motion is referred to as _____ energy.

A. Potential

B. heat or thermal

C. kinetic

D. electrical

34) The _____ law of thermodynamics states that energy is constant, can neither be created nor destroyed.

A. First

B. Second

C. Third

D. Fourth

35) The study of energy relationships and their exchanges is called

A. Photosynthesis

B. Metabolism

C. Thermodynamics

D. oxidation

36) The backbone of the DNA is made of:

A. sugar-phosphate

B. nitrogenous base

C. sugar-nitrogenous base

D. phosphate-nitrogenous base

37) In DNA, adenine (A) pairs with:

A. Uracil (U)

B. cytosine (C)

C. guanine (G)

D. thymine (T)

39) Which of the cellular structures are not present in prokaryotic cells like bacteria?

A. Ribosomes

B. Plasma membrane

C. Mitochondria

D. Cell wall

40) Which of the following organelles is not found in plant cells?

- A. Nucleus
- B. Endoplasmic reticulum
- C. Centriol**
- D. Chloroplast

41) Which statement is correct about ribosomes?

- A. Ribosomes are particles made of ribosomal RNA and protein
- B. Ribosomes are synthesized in the nucleolus
- C. Ribosomes carry out protein synthesis
- D. All the above statements are correct**

42) Cilia and flagella are made of:

- A. microtubules**
- B. microfilaments
- C. intermediate filaments
- D. collagen

43) The plasma (cell) membrane proteins can function in:

- A. cell-cell recognition and communication
- B. transport
- C. enzyme activity
- D. all the above are correct**

44) Water-loving molecules are called:

- A. hydrophilic**
- B. hydrophobic
- C. hydrocarbons
- D. Hydrolytic

45) Which of the following molecules crosses (passes) plasma (cell) membrane easily?

- A. Amino acids
- B. glucose
- C. oxygen (O₂)**
- D. cellulose

46) Large solid particles enter the cell by a process called:

A. exocytosis

B. phagocytosis

C. pinocytosis

D. Polycytosis

47) Most enzymes are:

A. nucleic acids

B. proteins

C. lipids

D. Carbohydrates

48) In your body cells, enzymes need:

A. optimal temperature

B. optimal pH

C. vitamins

D. all the above are correct

49) What is the energy

A) The amount of food eaten

B) The capacity to perform work

C) Movement

D) The capacity to produce heat

50) Which one of the following statement is true about diffusion?

A. involves movement of solute molecules

B. It occurs when molecules move from a region of high concentration to a region of low concentration

C. It does not require a semi-permeable membrane

D. All of the above