24.	X	α-and β-tubulin subunits are globular proteins that covalently bound to form tubulin heterodimer for synthesis and polymerization of MT.
25.	√	25:3($\Delta^{9,15,19}$): this represent a 25-carbon tail polyunsaturated fatty acid with three double bond between C-9 and C-10 , between C-15 and C-16 and between C-19 and C-20.
26.	√	At low temperatures, fluidity of cell membrane is increased by polyunsaturated fatty acid tails and higher cholesterol content.
27.	√	Cell membrane Fluidity could be increased or decreased by increasing cholesterol concentration.
28.	√	cell's surface area to volume ratio limits the maximum size of a cell.
29.	√	Cholesterol is a structural element in animal cell membrane and act as a buffer for membrane fluidity.
30.	√	Condensation reaction connects a monomer to a monomer or to a growing polymer
31.	√	Cytosolic and axonemal MTs are identical in their basic structure, however their dynein motor proteins are different.
32.	√	Epigenetic changes are variations in gene expression due to alterations in chromatin structure.
33.	√	Glyceraldehyde is a monosaccharide that contains only one chiral center and considered as the simplest trialdose.
34.	√	Golgi cis face receives the vesicles from the transitional area of the endoplasmic reticulum.
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6- What is the molecular formula of amylose molecule containing 50 building units?

a) $C_{300}H_{602}O_{300}$	b) $C_{60}H_{10}O_{50}$	c) $C_{50}H_{10}O_{60}$	d) $C_{300}H_{502}O_{251}$	e) none of the above

7- Of the following strands of DNA, in combination with their complement to form a double helix, three have a melting temperature (Tm) of about 42°C. One has a Tm of 52°C. Which one?

a) TCATGCGATC	b) CTTAAATTTG	c) TAACTACGAA	d) AAATTTGGGA	e) ATTGAGTGTA

8- The DNA of a certain organism has guanine as 40% of its bases. What percentage of its bases would be adenine

a) 60 %	b) 10 %	c) 20 %	d) 40 %	e) none of the above

9- the freezing point of acetic acids (CH$_3$COOH) is 16.60 °C and the depression in the freezing point of acetic acids is 3.9 °C per mole of solute. What is the freezing point of 0.01 M solution of H_2SO_4 dissolved in acetic acids

a) 11.7 °C	b) 15.43 °C	c) 12.7 °C	d) 16.48	e) none of the above

10-Flagella move due to the interaction of the microtubules with:

a) radial spokes	b) Tubulin heterodimer	c) Dynein	d) Kinesin	e) Basal body

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X	Bacterium cell wall is a rigid layer composed in part of a homopolysaccharide built from two alternating different monosaccharide units with (β1→4)-linkage.
X	Both addition and breakdown of α-tubulin and β- tubulin subunits occurs at the plus and minus ends, but with higher rate at the plus end.
X	chiral carbon atom is attached to at least three different atoms or groups of atoms
X	Depending on carboxyl group location, a monosaccharide is either an aldose or a ketose
X	Euchromatin are tightly compacted regions of eukaryotic chromosomes such as centromere and telomeres. Euchromatin are transcriptionally inactive
	Hydrogen atoms covalently bonded to carbon atoms do not participate in hydrogen bonding, because carbon is much more electronegative than hydrogen.
	Hydrogen bonds are restricted only to water-to-water molecules and water-to-polar molecules
	In a double stranded DNA, the ratio of purines : pyrimidines is specie or organism specific
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12.	X	Lysosomes are considered as intracellular digestion center that use their hydrolytic hormones to recycle cell's own organic material. Lysosomes are function best in an acidic environment.
13.	X	nonpolar amino acids are characterized by having a nonionizable α-carboxyl (COOH) group
14.	X	O_2, N_2, and CO_2 are nonpolar gases because electrons are shared equally by atoms.
15.	X	polyprotic weak acids are considered as much more good buffers at its middle Pka value
16.	X	Secretory proteins depart within a transport vesicles from a region on SER called transitional ER
17.	X	Sidedness of cell membrane refers to the symmetrical arrangement of membrane proteins, lipids, and their associated carbohydrate.
18.	X	Smooth endoplasmic reticulum is abundance in the pancreatic cells that secrete large amounts of digestive enzymes.
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21.	X	The polypeptide chain in α-helix secondary structure are extended to its maximum length
22.	X	The walls of microtubules consist of longitudinal arrays of 13 microfilaments
23.	X	The α-helix is stabilized by intrachain hydrogen bonds formed between the side chain R groups of every fourth amino acid.

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46.		mRNA are nucleic acids with enzymatic activities
47.		cytoplasm of all types of proteins of an eukaryotic cells starts on free ribosomes
48.		The first few codons on the translated mRNA determined the destination of the synthesized polypeptide chain
49.		The net charge of a cysteine dissolved in high pH aqueous solution is (-2)
50.		a helix segment of a polypeptide is more stable when acidic amino acids are found near the N-terminus and basic amino acids are found near the C –terminus

1. What is the pOH for 0.001 M HCl aqueous solution

a) 2	b) 3	c) 11	d) 13	e) none of the above

2. Which of the following molecules is mostly synthesizes by the Smooth ER

a. Proteins	b. Phospholipids	c. Carbohydrates	d. Glucose	e. Starch

3. What is the pH for an aqueous solution of equal concentrations of $PO4^{-3}$ and $HPO4^{-2}$ Giving that for phosphoric acid H3PO4 : Pk1=2.14 Pk2 =6.86 Pk3= 12.4

a) 7.14	b) 4.86	c) 12.4	d) 7	e) none of the above

4. Which of the following is a non reducing sugar?

a) α Maltose	b) β-Lactose	c) α Fructose	d) 2 deoxyribose	e) none of the above

5. Which of the following pOH values represents the weakest acidic solution?

a) 2.14	b) 4.18	c) 7.74	d) 10.4	e) 14

Scanned with CamScanner

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4.	X	Both addition and breakdown of α-tubulin and β- tubulin subunits occurs at the plus and minus ends, but with higher rate at the plus end.
5.	X	chiral carbon atom is attached to at least three different atoms or groups of atoms
6.	X	Depending on carbonyl group location, a monosaccharide is either an aldose or a ketose
7.	X	Euchromatin are tightly compacted regions of eukaryotic chromosomes such as centromere and telomeres. Euchromatin are transcriptionally inactive
8.	X	Hydrogen atoms covalently bonded to carbon atoms do not participate in hydrogen bonding, because carbon is much more electronegative than hydrogen.
9.	X	Hydrogen bonds are restricted only to water-to-water molecules and water-to-polar molecules
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