NITTE (Deemed to be University) | NMAM INSTITUTE OF TECHNOLOGY

BIOLOGY FOR ENGINEERS (BT1651-1)
UNIT 1-QUESTION BANK (Topic 1-5)

Q. N	Topic 1: Why Biology for Engineers	Option A (Correct Ans)	Option B	Option C	Option D
1.	The nose of the redesigned Shinkanzen bullet train is inspired by	Kingfisher beak	Crane peak	Owl Peak	Herons peak
2.	Passive cooling in sky scrapers is inspired by	Termite Mounds	Earthwork Mounds	Ant Mounts	Spiro Mounds
3.	Belt movement of military tanks was inspired by	Caterpillar Movement	Termite Movement	Ant Movement	Butterfy Movement
4.	Retinal prosthetic developed by scientists is approved by	USFDA	USEPA	CPCB	SPCB
5.	The gene from _____ was used to develop genetically modified corn	*Bacillus thuringiensis*	*Bacillus cereus*	*Bacillus subtilis*	*Bacillus Anthrasis*
6.	Protein produced by *Bacillus thuringiensis* which has insecticide property is	Cry Protein	Res Protein	Try Protein	Taf Protein
7.	Biofertilizers have the potential to	Replace chemical nitrogen and phosphorus	Reduce crop yield	Destimulate plant growth	Reduce soil fertility
8.	In the case of self healing concrete the microstucture analysis can be done by	SEM	XRD	FTIR	XPS
9.	_____is a pollution control technique using a bioreactor containing living material to capture and biologically degrade pollutants.	Biofiltration	Bioaugmentation	Bioleaching	Biomimetics
10.	A nanoparticle is a small particle that ranges between _____	1 to 100 nm	1 to 100 mm	1-1000 nm	1- 10 µm

11.	The tensile strength of carbon nanotubes is approximately _____ times greater than that of steel of the same diameter.	100	10	25	50
12.	Who first used the term nanotechnology and when	Richard Feyman, 1959	Nario Taniguchi, 1974	Erix Dexler, 1986	Alexander Flemming, 1940
13.	The width of carbon nanotube _____	1.3nm	1nm	2nm	1.55nm
14.	If 10 hydrogen atoms are laid side by side the length of this chain would be	7 nm	10nm	2nm	20nm
15.	Human hair is _____ nm in size	50000- 100000	500- 1000	500000-1000000	50-100
16.	The prefix nano comes from _____ word nanaos which means dwarf	Greek	French	Spanish	Latin
17.	Why is there a need to switch to organic farming?	Increasing environmental pollution	Increasing poverty	Increasing road accidents	Increasing population
18.	Early detection of cancer can be achieved by	AI	CCD	BBD	MRIS

Q. N	Topic 2: Cell Properties and Types	Option A (Correct Ans)	Option B	Option C	Option D
19.	Prokaryotic cell size ranges from _____ in diameter	0.1 to 5.0 µm	0.1 to 50 µm	10 to 50 µm	2 to 10µm
20.	_____do not have a true nucleus and membrane-bound organelles	Prokaryotic cells	Eukaryotic cells	Plant cells	Animal cells
21.	Mitochondria, Golgi bodies, chloroplast, and lysosomes are absent in	Prokaryotic cells	Eukaryotic cells	Plant cells	Animal cells
22.	_____ protein is the important constituents of eukaryotic chromosomes	Histone	Heme	Cistone	Diastone
23.	The asexually mode of division in prokaryotes is by	Binary fission	Conjugation	Ligation	Mitosis
24.	The sexual mode of reproduction in prokaryotes is by	Conjugation	Binary fission	Ligation	Mitosis
25.	The outer protective covering found in the bacterial cells which helps in attachment is _____	Capsule	Cell wall	Cell membrane	Cytoplasm
26.	_____ are involved in protein synthesis	Ribosomes	Lysosomes	Mitochondria	Vacuoles

27.	_____ are hair-like outgrowths that attach to the surface of other bacterial cells.	Pili	Capsule	Flagella	Cilia
28.	_____ can be used to observe virus	Electron Microscope	Light Microscope	Naked eye	Fluorescent microscope
29.	_____ possess extrachromosomal DNA known as plasmids	Bacteria	Fungi	Yeast	Plant cell
30.	Cell wall of bacterial cell is composed of	Peptidoglycan	Protein	Cellulose	Chitin
31.	Chitin is the structural component present in _____ cell wall	Fungal	Bacterial	Cynobacterial	Virus
32.	Gram Positive bacteria have thick layer of _____	Peptidoglycan	Chitin	Mannose	Teichoic Acid
33.	Gram negative organisms are very _____ to antibiotics	Resistant	Susceptible	Receptive	Vulnerable
34.	_____ content is very low in gram positive bacteria	Lipid	Carbohydrate	Protein	Fat
35.	Cell wall thickness of gram positive organism is	20- 80 nm	2- 8 nm	200- 800 nm	150- 300nm
36.	When gram positive bacteria is stained by gram staining technique and visualized under the microscope it looks _____	Purple	Pink	Red	Brown
37.	_____ needs to enter a living thing to perform its only function, which is to replicate	Virus	Bacteria	Fungi	Yeast
38.	_____ hijacks a person's cellular machinery to produce clones of itself	Virus	Bacteria	Fungi	Yeast
39.	Which of the following is not a typical shape of virus	Trapezoid	Polyhedral	Spherical	Helical
40.	_____is commonly known as black bread mold	Rhizopus stolonifer	Rhizopus mucoraceae	Aspergillus niger	Candida albicans
41.	Which of the following is not a edible mushroom	Amanita Mushrooms	Oyster Mushrooms	Morel Mushrooms	Portobello Mushrooms

Q. N	Topic 3: Eukaryotes – Plant and Animal Cells	Option A (Correct Ans)	Option B	Option C	Option D
42.	The Greek word "Eu" means	well	large	round	embryo
43.	Which of the following is a eukaryotic cell?	protozoan	virus	bacteria	None of these

44.	Which of the following is not a eukaryotic cell?	bacteria	protozoan	fungi	animal
45.	Which of the following is not a characteristic of eukaryotic cell?	circular DNA	membrane enclosed nucleus	membrane bound organelles	cytoskeleton
46.	The cell wall is present in	only plant cells	only animal cells	plant and animal cells	protozoans
47.	The following is not a function of the cell wall	helps in water transport	provides shape to cell	cell to cell interaction	protection against injury
48.	Cell membrane is also called as	Plasma membrane	Plasmalemma	Cell wall	nuclear membrane
49.	Cell membrane is made up of	phospholipid bilayer	phospholipid trilayer	glycolipid layer	phospholipid layer
50.	_____ positions the organelles in a cell	Cytoskeleton	Cytoplasm	Cell membrane	Cell wall
51.	_____ is the center of nucleus	Nucleolus	Nucleoplasm	Nuclear Membrane	Chromatin
52.	The function of ribosomes is _____	protein synthesis	chromatin synthesis	endoplasmic reticulum synthesis	enzyme synthesis
53.	Ribosome is attached to _____	Endoplasmic reticulum	golgi complex	mitochondria	lysozome
54.	The consistency of cytoplasm is _____	semisolid	solid	liquid	gaseous
55.	Which of the following is not a function of cytoskeleton?	Transport of ions	cell shape	cell movement	positions organelles
56.	In eukaryotic cells DNA is _____	linear	circular	irregular	flat
57.	The function of the nucleolus is to produce	ribosomes	proteins	enzymes	energy
58.	Ribosome in found attached to _____ and _____	nucleus, ER	ER, mitochondria	nucleus, mitochondria	nucleolus, mitochondria
59.	The function of ribosomes is _____	protein synthesis	enzyme synthesis	energy synthesis	DNA synthesis
60.	The synthesis of cholesterol is done by _____	smooth ER	Rough ER	Golgi complex	centromere
61.	The molecule that functions as energy for cells is _____	Adenosine Tri Phosphate	Adenosine Di Phosphate	Adenosine Mono Phosphate	Adenosine Phosphate
62.	The matrix of the mitochondria in animal cells contains DNA and _____	ribosomes	vacuoles	centrioles	Endoplasmic Reticulum
63.	The Golgi complex releases _____ for package and transport of proteins	vesicles	ribosomes	vacuoles	centrioles
64.	_____ are called as suicide bags of the cells	lysozomes	centrioles	vacuoles	centromeres

65.	The cytoskeletal components are synthesized by _____ in the animal cell	centromere	ribosomes	vacuoles	vesicles
66.	The membrane around the vacuole is called as	tonoplast	chloroplast	leucoplast	centroplast
67.	The shape of plant cells is _____	rectangular	circular	irregular	flat

Q. N	Topic 4: Biomolecules	Option A (Correct Ans)	Option B	Option C	Option D
68.	Which of the following is not a biomolecule?	Calcium sulphate	Carbohydrates	Lipids	Nucliec Acids
69.	Lipid is comprised on fatty acids and _____	Glycerol	Alcohol	Hydrocarbon	Butanol
70.	Palmatic acid is designated as ____	C16	C14	C18	C20
71.	Fatty acids with no double bonds are _____	Saturated	Unsaturated	Transaturated	Cisaturated
72.	Which of the following is not a type of lipids?	Saturated lipids	Simple lipids	Complex lipids	Derived lipids
73.	Which is a type of Derived lipids?	Steroids	Phospholipids	Glycolipids	Waxes
74.	Phospholipids contain fatty acids, glycerol and a ___	phosphate group	phosphorous atom	phosphoric acid	none of these
75.	Glycolipids contain fatty acids, glycerol and _____	carbohydrates	glucose	sucrose	fructose
76.	Terpenes are components of essential oils secreted by _____	plamt cells	insects	animal cells	fungi
77.	The component of cell membrane is _____	phospholipid	glycolipid	sphingolipid	lipoproteins
78.	_____ is present in the myelin sheath of nerve fibres	sphingolipid	phospholipid	glycolipid	lipoproteins
79.	The general formula for carbohydrates is ___	$C_n(H_2O)_n$	$C_{n+1}(H_2O)_n$	$C_n(H_{2n}O)_n$	$C_{n+1}(H_{2n}O)_{n2}$
80.	Which of the following is not a type of complex carbohydrate?	monosaccharide	disaccharide	oligosaccharide	polysaccharide
81.	Based on _____, carbohydrates are classified into aldoses and ketoses	functional group	no of carbon atoms	double bonds	number of saccharides
82.	Ribose is an example for _____	pentose	hexose	triose	heptose
83.	Starch is a _____	polysaccharide	oligosaccharide	monosaccharide	disaccharide
84.	_____ sugar present in legumes etc causes flatulence	raffinose	starch	glycogen	cellulose
85.	There are ____ amino acids divided into ___ groups	20, 7	25, 7	20, 8	25, 8

86.	Amino acids are joined by _____ bonds	peptide bond	phosphodiester bond	hydroxyl bond	amine bond
87.	Which of the following is an acidic amino acid?	glutamine	glycine	alanine	leucine
88.	Pleated sheet and alpha helix are types of _____ structures of proteins	secondary	primary	tertiary	quaternary
89.	In an alpha helix there exists ___ amino acids per turn	3.6	4	3.8	3
90.	Beta pleated sheets are joined on their sides by _____ bonds	hydrogen	hydroxyl	amine	peptide
91.	_____ strengthens bones and skin	Collagen	Raffinose	actin	myosin
92.	Actin and myosin are the proteins involved in	muscle contraction	bone strengthening	blood circulation	immune development
93.	Antibodies are _____	proteins	fats	carbohydrates	lipids
94.	The process of synthesis of proteins from RNA is _____	translation	transcription	replication	transfusion
95.	In RNA, the nitrogenous base _____ is replaced by uracil	thymine	adenine	guanine	cytosine
96.	_____ attached to the phosphate group is called nucleotide in case of nucleic acids	Nucleoside	Base	Sugar	Phosphodiester bond
97.	Adenine: Guanine:: Cytosine:_____ in DNA	Thymine	Uracil	Purine	Pyrimidine
98.	The strands of DNA run _____ to each other	Anti-parellel	parellel	obtuse	horizontal
99.	The nitrogenous bases in DNA pair by _____	hydrogen bonds	phosphodiester bonds	peptide bonds	phosphotriester bonds
100.	_____ carries the genetic information of DNA to be used for protein synthesis	messenger RNA	transfer RNA	ribosomal RNA	information RNA
Q. N	**Topic 5: Life Processes at Cellular Level**	**Option A (Correct Ans)**	**Option B**	**Option C**	**Option D**
101.	What is not produced during photosynthesis?	Carbon dioxide	Oxygen	Organic compounds	Glucose
102.	What is the source of energy for photosynthesis to take place?	Light	ATP	Water	Oxygen

103.	Calvin's cycle takes place in the _____	Stroma	Thylakoids	Grana	Chlorophyll
104.	Photosynthesis doesn't depend on _____	Chlorophyll content	Temperature	Light intensity	Carbon dioxide
105.	ATP is a _____ derivative	Nucleotide	Nucleoside	Protein	Lipid
106.	_____ of the ATP contains large amount of energy in the form of high energy electrons	Phosphate bonds	Sugar	Nitrogenous base	Nucleotide
107.	The process by which cell breaks down glucose to give ATP is _____	Respiration	Photosynthesis	Mitosis	Meiosis
108.	Electron transport occurs in _____ of mitochondria	Cristae	Matrix	Cytoplasm	Grana
109.	In aerobic respiration, one glucose molecule releases _____ molecules of ATP	38	2	22	18
110.	In anaerobic respiration, one glucose releases _ molecules of ATP	2	38	22	18
111.	The function of DNA polymerase is _____	To join nucleotides to form new DNA strand	Break hydrogen bonds	Unwind DNA strand	Replicate DNA
112.	Glucose breaks down to form two pyruvate molecules in _	Glycolysis	Krebs cycle	Electron transport chain	Photosynthesis
113.	In krebs cycle pyruvate is broken down to give hydrogen and _____	Carbon dioxide	Oxygen	ATP	Energy
114.	DNA replication is forming multiple copies of _____	Chromosomes	RNA	Genetic material	Heredity
115.	Which of the following is not a step in mitosis?	Interphase	Prophase	Metaphase	Anaphase

116.	Cell grows and prepares for mitosis in _____ step	Interphase	Prophase	Metaphase	Anaphase
117.	After cell division the divided cells are referred to as _____ cells	Daughter	Son	Offspring	Product
118.	Chromatids are joined by _____ in prophase	Centromeres	Lysosomes	Microtubules	Cytoskeleton
119.	In cytokinesis _____	Two daughter cells are formed	Two chromosomes are formed	Chromatids divide	Spindle fibres are formed
120.	In photosynthesis raw materials are _____	Carbon dioxide and water	Oxygen and water	Hydrogen and water	Carbon dioxide and light

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