Biology for Engineers Semester End Exam Total 100 MCQ- for 60 minutes

6 MCQs from each (Topic 1-10)=60

5 MCQs from each (Topic 11-13)=15

20 MCQs from [Topic (1-10) other than Question Bank]=20

5 MCQs from [Topic (11-13) other than Question Bank]=5

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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	Nario Taniguchi, 1974	Richard Feyman, 1959	Erix Dexler, 1986	Alexander Flemming, 1940
13.	The width of carbon nanotube _____	0.5-2.5nm	0.1-0.5nm	2.5-4.5nm	4.5-6.5 nm
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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BIOLOGY FOR ENGINEERS (BT1651-1)
Unit 2-QUESTION BANK (Topic 6-10)

Q. N	Topic 6: Composites in Construction, Termite Mound Architecture	Option A (correct Ans)	Option B	Option C	Option D
1.	Composites are	Two or more constituent materials	Materials with similar chemical properties	Materials with similar physical properties	Only one material with different shapes, colours
2.	This is not a beneficial aspect of composites	Heavy weight	Corrosion resistance	High durability	Design flexibility
3.	Composites are used	All the fields mentioned	Only in constructions	Only in medical applications	Only in transportation
4.	Composite materials are used in construction due to	Better than traditional building materials	Heavy weight	Different shapes available	Different colours available
5.	FRP composites are created using	Plastic Polymer Resin	Glass Polymer Resin	Ceramic Polymer Resin	Metal Polymer Resin
6.	FRP composites are created through the combination of a plastic polymer resin with strong	Fibers	Glass	Metal	Ceramic
7.	Bio-composites are fabricated by combining _____in a matrix material.	Natural fibers	Natural rubber	Synthetic fibres	Synthetic rubber
8.	This is an example of a natural bio composite	Wood	Rubber	Cotton	Jute

9.	Naturals fibers are abundant and have	Low harvesting costs	High harvesting costs	Low growth rate	High growth rate
10.	Synthetic fibers have	Recycling issues	Production issues	Transport issues	Raw material issues
11.	Synthetic fibers generates	Toxic byproducts	Non toxic byproducts	No byproducts	Neutral byproducts
12.	Biocomposites are made using	Reinforcement and matrice	Reinforcement and filler	Matrice and thermosets	Matrice and polymers
13.	This is not a natural fiber	Isocyanate	Cotton	Hemp	Flax
14.	Hybrid biocomposites are derived by	Fibers and matrix blending	Only fiber blending	Only matrix blending	Only polymer blending
15.	This is not expected in case of biocomposites	Rottening	Light weight	Recyclability	Local production
16.	The termite mounds sometimes have a diameter of _____metres	30	40	50	60
17.	The termites will not use this for mound construction	Wood	Soil	Saliva	Dung
18.	Although the termite mound appears solid, the structure is incredibly	Porous	Non porous	Wet	Hot
19.	The termite mounds are often occupied by	Snakes	Rats	Frogs	Bats
20.	Termites mound chimneys use sunlight to heat and cool the structure and ventilate____	Oxygen	Nitrogen	Carbon dioxide	Hydrogen

Q. N	**Topic 7: Counter Current Heat Exchangers**	**Option A (correct Ans)**	**Option B**	**Option C**	**Option D**
21.	Heat exchangers are devices designed to transfer heat between two or more	All of these	Vapors	Gases	liquids

22.	The heat transferring process in heat exchangers occurs through which separator	Solid	Liquid	Gas	vapour
23.	Which prevents the mixing of the fluids or direct fluid contact in heat exchangers	Solid separator	Liquid separator	Gas separator	vapour separator
24.	In a heat exchanger, two fluids (hot and cold) flow in opposite directions. The type of fluid flow is:	Counter current	Co-current	Cross current	Parallel current
25.	Heat exchangers prevents vehicle engines	Overheat	Overspeed	Overcharge	Overcool
26.	In large fish and aquatic mammals core body temperature is maintained constant by	Counter current heat exchange	Concurrent heat exchange	Net current exchange	Anit current Exchange
27.	The tuna fish has core body temperature as like	Mammals	Reptiles	Insects	Worms
28.	The tuna fish was often called as	Warm blooded fish	Cold blooded fish	Slow moving fish	Tiny fish
29.	Tuna fish while swims, higher amount of heat is generated in the core of the body due to	Muscle action	Nerve action	Backbone action	blood vessel action
30.	The core body temperature of an animal may rise even up to_____degree celsius, while it is running?	42	82	62	72

Q. N	**Topic 8: Design of Aeroplane, Helicopter and Submarine**	**Option A (correct Ans)**	**Option B**	**Option C**	**Option D**
31.	Who drew the first aircraft design art?	Leonardo da vinci	Donatello	Michelangelo	Raphael
32.	The aircraft design art drawn during, 14th century was named as_____	Helical air screw	Eliptical air screw	Rounded air screw	Axial air screw
33.	The wright brothers' first flight name is_____	Flyer 1	Trailer 1	Arial 1	Helical 1

34.	By observing the birds flying mechanism, the wright brothers are able to control their airplane by	Wing warping method	Wing wrapping method	Wing folding method	Wing stretching method
35.	The contour of bird wing design shows	Minimum resistance for wind	Maximum resistance for wind	No resistance for wind	Threshold resistance for wind
36.	The aspect ratio in the wing design is	Length to width	Width to length	Length to thickness	Width to thickness
37.	In the birds wing the aspect ratio varies from	1.5-18	1.5-1.8	15-18	150-180
38.	As the aspect ratio increases in the wing design, the flight adaptability is	Better	Worse	No change	Cannot be determined
39.	When air moves over the wing, the air pressure above the wing	Decreases	Increases	Remains same	Cannot be determined
40.	When air moves over the wing, the air pressure below the wing	Increases	Decreases	Remains same	Cannot be determined
41.	The blades at the hind edge of the wings of an air plane are withdrawn while on	Gliding	Landing	Take off	On runway
42.	In the airplane, wing blades at the hind edge are extended and thrusted downward while	Landing	Take off	Gliding	On runway
43.	A bird can change its wing shape by the help of	Feathers	Legs	Knees	Beaks
44.	The inventor of modern helicopter	Igor sikorsky	Louis-charles	Jacques breguet	Wright brothers
45.	The helicopter analogy is with this living creature	Dragonfly	Butterfly	Honey bee	birds
46.	How many sets of wings the dragon fly consists?	Two	Three	Four	One

47.	Which part serves to stabilize the helicopter during its flight?	Tail rotor	Rotor mast	Rotor blades	Tail boom
48.	Helicopter changes course by altering angle of attack by the help of	Mechanical levers	Electrical cables	Landing skids	Cockpits
49.	During generation of bernoulli lift, the air moves _____ over the top of the wing compared to the bottom	Faster	slower	In the opposite direction	In the same speed
50.	The high lift devices and control surfaces of airplane perform similar functions to which organ of birds?	Wings	Legs	Neck	Bill
51.	When dragon flies moves forward, what provides them the propulsion?	Rear wings	Front wings	Tail	Legs
52.	When the dragonfly moves forward, the front set of wings gives the dragonfly	Lift	Propulsion	Pressure	Rotation
53.	Absence of what causes the helicopter to rotate about it's own axis	Tail rotor	Rotor blades	Wing sections	Mechanical levers
54.	The dragonfly wings and the helicopter blades are designed in such a way that	Air flows faster through the upper region of the wings	Air flows slower through the upper region of the wings	Air flows faster through the lower region of the wings	Air flows slower through the lower region of the wings
55.	Dragonfly adjusts the angle of attack on it's wings by	Transitioning it's muscle to beats it's wings slightly different pattern	By rotating about its own axis	Fluttering the wings whilst flight	By changing it's mass
56.	Blades of helicopter are made up of composite materials to prevent	Cracking of blades under stress	Altering of angle of attack	Lift and propulsion	Upward suction effect

57.	The air flow below the rotor blades is slower resulting in high pressure so total effect is that the helicopter is	Pushed upwards	Pushed downwards	Pulled upwards	Pulled downwards
58.	The civilian submarines are used for marine and freshwater research projects which is called as	Oceanography	Windography	Hydrography	Marinography
59.	The whale body contour almost resembles to	Submarine	Airplane	Helicopter	Cruise ship
60.	The major similarity between whale body and submarine is _____.	Shape of body	Colour	Capacity	Speed

Q. N	Topic 9 : Information theory and biology, Sonar – Echolocation	Option A (correct Ans)	Option B	Option C	Option D
61.	Who proposed the information theory in communication industry?	Shannon	Feynman	Adleman	Watson
62.	DNA backbone, outside the double helix is made up of	Phosphate and sugar	Sugar and nitrogen	Nitrogen and carbon	Phosphate and nitrogen
63.	Which of the following statement is true related to DNA	The two DNA strands are anti-parallel and complementary	The two DNA strands are parallel and complementary	The two DNA strands are parallel and non-complementary	The two DNA strands are anti parallel and non-complementary
64.	This is the purine nitrogenous base of DNA	Guanine	Thymine	Cytosine	Uracil
65.	This is not the pyrimidine nitrogenous base	Adenine	Uracil	Cytosine	Thymine
66.	The idea of individual molecules could be used for computation was proposed by	Feynman	Shannon	Adleman	Watson
67.	The concept of DNA computing was introduced by	Adleman	Shannon	Feynman	Watson

68.	Dr. Adleman has written an article on solving HDP problem. Here HDP problem stands for	Hamiltonian directed path problem	Highly directed path problem	Halwart directional path problem	Holts directional path problem
69.	Adleman put his theory of DNA computing to the test on a problem called the	Traveling Salesman Problem (TSP)	Tool salesman Problem (TSP)	Ribo Computing Problem (RCP)	Machine Executing Problem (MEP)
70.	Which is the limitation of DNA computing?	Time consuming laboratory procedures	Extremely dense information storage	Enormous parallel computing possibilities	Extraordinary energy efficiency
71.	The science of using computational tools and systems to answer problems of biology is	Bioinformatics	Synthetic Biology	Computational Biology	Evolutionary Biology
72.	Developing theories, algorithms and statistical models to analyze biological data is	Computational Biology	Synthetic Biology	Bioinformatics	Evolutionary Biology
73.	Disadvantage of DNA strands for computing is	DNA is organic and decays. Experimentation thus must not be time consuming.	The two strands are complimentary. Hence is unique.	The four base pairs AGCT with triplet codes store enormous information.	Complementary strands give low scope for error.
74.	This is not the hidden factors affecting complexity of DNA computers	Complementarities of DNA makes it unique for error corrections	Arbitrary number of test tubes to be used for experiments	Unrealistic assessment of how reactant concentrations scale with problem size	DNA, in vitro (in the lab) decays
75.	The powerful computing power of DNA computers can be used in future for_____	All of these	Genetic programming	Language systems	Data Encryption
76.	What is SONAR?	Sound Navigation And Ranging	Solar Navigation And Response	Sound Navigation And Response	Solar Navigation And Ranging
77.	Which among the following is widely used submarine applications	SONAR	RADAR	LIDAR	Electromagnetic waves

78.	Which creatures use sound waves to locate objects _____	Bats	Butterflies	Dragonflies	Eagles
79.	Bats sense their direction through_____	Echolocation	Sense of sight	Wings	Nose
80.	Along with the position information, bats can also discriminate objects based on	All of these	Shape	Size	Texture
Q. N	**Topic 10 :Medical Devices- Artificial pacemaker, Bionic eye, Cochlear implant**	**Option A (correct Ans)**	**Option B**	**Option C**	**Option D**
81.	A pacemaker system consists of	Pulse generator, leads	Expansion generator, leads	Atrium blocker, leads	Ventricle blocker, leads
82.	The name given to the condition in which the electrical impulses may be blocked along the pathway through the heart_____	Heart block	Heart attack	Heart impulse	Heart Clog
83.	A single-chamber pacemaker paces _____	Right/left atrium or right/left ventricle	Left atrium only	Right atrium only	Right ventricle only
84.	The weight /mass of the pacemaker is about _____	22-50 gms	2.2-5 gms	220-500 gms	0.22-0.5 gms
85.	The Dual-chamber pacemaker senses _____	Both atrial and ventricular activity	Only right atrial activity	Only left ventricular activity	Only right ventricle activity
86.	The Biventricular-chamber pacemaker paces _____	Right/left atrium and both right/left ventricle	Left atrium only	Right ventricle only	Left ventricle only
87.	In which type of pacemaker the patient body serves as the grounding source	Unipolar	Bipolar	Multipolar	Non-polar
88.	In which type of pacemaker there is less chance for electromagnetic interference	Bipolar	Unipolar	Multipolar	Non-polar
89.	The insulated wire that carries the stimulus from a pulse generator to the heart in an artificial pace-maker is called?	Lead	Pacer	Generator	Pulsar

90.	Leads in an Artificial Pacemakers are wires threaded through _____ and attached to the heart muscles carrying impulses	Veins	Arteries	Aorta	Venacava
91.	The Bionic eye provokes visual sensations in the brain by directly stimulating different parts of	Optic nerve	Cornea	Eye lid	Eye lens
92.	Age related loss of central vision and blurred peripheral vision is	Macular degeneration	Glaucoma	Retinopathy	Cataract
93.	The genetic eye disease, where loss of peripheral vision occurs	Retinitis Pigmentosa	Glaucoma	Retinopathy	Macular degeneration
94.	The two medical conditions of eye that bionic eye aims to address are	Macular degeneration and Retinitis Pigmentosa	Retinitis Pigmentosa and Retinopathy	Glaucoma and Cataract	Macular degeneration and Retinopathy
95.	Cochlear implant captures sound and turns it into digital code with the help of:	Sound processor	Stimulator	Transmitter	Microphone
96.	The cochlear technology is to help people who	All of these	Who have moderate hearing loss in both of ears	Who has little or no benefit from hearing aid	Who has 50% or less or sentence recognition test score
97.	This is worn behind the ear or on the body, captures sound and turns it into digital code	Sound processor	Battery	Transmitting coil	Electrode array
98.	Choose the correct answer for which the benefits of a cochlear implant for hearing impaired person is not true	Cannot focus better when in noisy environment	Feel safer	Reconnect with missed sounds	Hear well
99.	Since 1972 more than _____ different cochlear implants have been done.	16	17	18	19
100	The hearing aids in the ear	Makes sound louder	Makes sound smoother	Makes sound silent	Makes sound noiseless

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BIOLOGY FOR ENGINEERS (BT1651-1)
UNIT 3-QUESTION BANK (Topic 11-13)

Q. N	Topic 11: Recent Scenarios in Environment	Option A (Correct Ans)	Option B	Option C	Option D
1.	Name of the first biodegradable leather is	Desserto	Adriano Di Marti	Bionic	Exhale
2.	The first biodegradable leather was developed in	Mexico	USA	Canada	Brazil
3.	The company which patented and manufacturing first biodegradable leather	Adriano Di Marti	Desserto	Lakhaani - Arman	Prickly pear
4.	The cactus from which leather is manufactured is also known as	Prickly pear	Breathing Leaf	Arborea	Indian Cactus
5.	What motivated the inventors to design the biodegradable leather?	Environmental Pollution	Large land requirement for leather industry	Surplus production of Cactus	Lot of aerable land available
6.	Whether biodegradable leather be used in fabric manufacturing?	Yes, without any modification	Yes, but chemical treatment is necessary	Only limited fabrics can be designed	No, it cannot be used
7.	The carbon sequestering capacity of Cactus used for leather: Absorbs about 8000 tons per year of CO2, whereas it produces CO2 at the rate of:	15 tons per year	5000 tons per year	8000 tons per year	15300 tons per year
8.	To produce 1 linear metre of biodegradable leather, how many fully grown cactus leaves are required?	3	1	30	10
9.	To manufacture leather from Cactus, full Cactus plant need to be harvested.	No, only fully grown leaves are removed leaving the plant intact with young leaves	No, all the leaves are removed but plant without leaves is left	Yes, full plant is removed but the small cutting from old plant is cultivated again	Yes, plant is completely harvested and new plants are cultivated again each year.

10.	Which of these is TRUE for the biodegradable leather?	There is No Water pollution with Chromium salts	Consumes lot of water for processing	Consumes lot of energy for drying of cactus powder	Emits more carbon to environment
11.	The life cycle analysis of different types of leather manufacturing indicates:	Biodegradable leather is more sustainable	Animal leather requries lesser energy and more efficient	PU leather is more sturdy and better than all other leathers	Leather types cannot be compared using LCA
12.	GHG Carbon emission in which of the following manufacturing process is Lowest?	Desserto Leather	PU Leather	Animal Leather	Artificial Leather
13.	What is the name of bionic chandelier designed by Julian Melchiorri?	Exhale	Inhale	Arborea	Breathing leaf
14.	What does the bionic chandelier do?	Purifies the indoor air by producing oxygen	Produces natural glowing light	Decreases moisture content of air	Decreases intensity of light
15.	In the bionic chandelier designed by Julian, how many leaves are there?	70	numerous	3	24
16.	What does the bionic chandelier contain?	Photosynthetic algae	Artificial air purifier	Light emitting flourospores	It is just a metallic structure with varying green shades
17.	Why the bionic chandelier is connected to a life support device?	To provide nutrient to algae	To remove the odor captured by air purifier	To replenish the concentration of flourospores	There is no such unit attached to bionic chandelier
18.	Bionic chandelier establishes which new type of symbiotic relationship between	Object and Human	Object and Environment	Algae and Light	Human and Environment
19.	Which byproduct of the oil refinery is used for making of roads?	Bitumen	Asphalt	Coal	Kerosene
20.	Bitumen in the asphalt act as a	Binder material	Base material	Coloring material	Bitumen is not a part of asphalt
21.	Identify the correct order of waste plastic processing before it is used in road construction along with asphalt.	Clean - Dry - Shred - Melt	Dry - Shred - Clean - Melt	Clean - Melt - Dry - Shred	Melt - Dry - Clean - Shred
22.	Which of the following is NOT TRUE about Dr. Rajagopalan Vasudevan.				
23.	Which of these is the natural alternative to Bitumen as per current findings?	Lignin	Cactus powder	PET or PP or HDPE	Binder Enzymes

24.	Which process is currently demonstrated to use Lignin as binding agent in road construction?	Pyrolysis	Photosynthesis	Metabolism	Hydrolysis
25.	whether natural lignin is currently demonstrated as a complete replacement for Bitumen?	No, 50-50 mix of Lignin and Bitumen is demonstrated	Yes, 100% replacement has been demonstrated	No, about 10% of Bitumen can be replaced.	No, lignin is not a suitable alternative to bitumen.

Q. N	Topic 12: Recent Scenarios in Agriculture	Option A (Correct Ans)	Option B	Option C	Option D
26.	The Solar powered pest control system was developed at	IIT Kharagpur	IIT Kanpur	IIT Madras	Thyagarajar College of Engg
27.	In solar powered pest control system, what device is used to pressurize the liquid to be dispersed?	DC Motor	AC Motor	Solar Panel	Nozzles
28.	How larger width of spray area is achieved in solar powered pest control system?	Use of multiple nozzles on boom	Use of multiple DC motors	Use of large solar panels	Use of low viscosity pesticides
29.	The administrator of solar pest control unit is required to	Monitor the spray module movement	Carry the pesticide backpack	Spray the pesticide using nozzle module	Need not be present at the field
30.	Development of indigenous solar pest control system comes under which type of Govt of India initiative?	Atmanirbhar Bharat Abhiyan	Skill India	Pradhan Mantri Jan Dhan Yojana	Stand Up India Scheme
31.	Novel BioDCM nanoparticle based pesticide can protect agricultural crops from the infection of	Both bacterial & fungal	Bacterial only	Fungal only	None
32.	The major or leading institutes that developed BioDCM nanoparticles based pesticide	IIT Kanpur	IIT Kharagpur	IIT Madras	IIT Bombay
33.	The fullform of the pesticide BioDCM	Bio-Degradable-Carbonoid-Metabolite	Bio-Degradable-Carbon-Metal complex	Biologically Designed Commercial Metabolite	Biologically Designed Chemical Molecule
34.	The pesticide BioDCM is extracted from	*Trichoderma asperellum*	*Xanthomonas oryzae*	*Bacillus anthracis*	*Arabidopsis thaliana*
35.	The pesticide BioDCM is extracted from which of these?	Fungal strain	Bacterial strain	Virus	Chemically synthesized
36.	*Trichoderma asperellum* is a	Common soil fungus	Common soil bacterium	Viral agent	Crop variety
37.	If you need to measure water potential in crop leaves using their turgor pressure, then which of these sensors are more useful?	Mechanical sensors	Accoustic sensors	Optical sensors	Chemical sensors
38.	If you require Geometric structure of plant which is sensor is more useful?	Accoustic sensors	Mechanical sensors	Optical sensors	Chemical sensors

39.	Which of these sensors use their own light for measurement?	Active optical sensor	Passive optical sensor	Accoustic sensors	Mechanical sensors
40.	Which of these sensors are useful to measure nitrogen content in crops?	Optical sensors	Chemical sensors	Mechanical sensors	Accoustic sensors

Q. N	Topic 13: Recent Scenarios in Medical Technology	Option A (Correct Ans)	Option B	Option C	Option D
41.	A device that provides “real-time” glucose readings and data about trends in glucose levels	Continuous Glucose Monitor	Canadian Glucose Machine	Glucometer	Diabetescare
42.	Why one should use GSM	To Monitor Blood Glucose level	To monitor Genetic Syndrom	To inject Insulin	To assess blood cholesterol level
43.	Sensor life of Freestyle Navigator is	5 days	6 days	10 days	8 days
44.	DexCom 7 Plus needs caliberation	every 12 hours	every 12 days	every 15days	every 15 hours
45.	In 1985 a ROBOT, the PUMA 560, was used to place a needle for a _____ biopsy using CT guidance.	Brain	Heart	Lung	Skin
46.	Robots were first introduced in _____ with the first laparoscopic surgery.	1987	1897	1988	2001
47.	Robotic surgery means	Microsurgery in which the surgeon performs surgery by manipulating the hands of a robot	Surgery done by Robot with programmed software	Microsurgery done remotely without any physical presence	Surgery done for Robots in micro level
48.	Retractor system present in _____ type of Robot	Passive	Active	Both Passive and Active	Manual
49.	One of the following is name of a Robot used in Medical Technology	PUMA 560	ROMA 560	DOLLY 650	ROBO 110
50.	DexCom 7 Plus is a	CGM available in the Market	Robot used in Brain surgery	Monitoring system for heart beat	Computer software for Medical technology

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