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

BIOLOGY FOR ENGINEERS (BT1651-1)
MSE 2-QUESTION BANK (Topic 5-9)

Q. N	Topic 5: Life Processes at Cellular Level	Option A (Correct Ans)	Option B	Option C	Option D
1.	What is not produced during photosynthesis?	Carbon dioxide	Oxygen	Organic compounds	Glucose
2.	What is the source of energy for photosynthesis to take place?	Light	ATP	Water	Oxygen
3.	Calvin's cycle takes place in the _____	Stroma	Thylakoids	Grana	Chlorophyll
4.	Photosynthesis doesn't depend on _____	Chlorophyll content	Temperature	Light intensity	Carbon dioxide
5.	ATP is a _____ derivative	Nucleotide	Nucleoside	Protein	Lipid
6.	_____ of the ATP contains large amount of energy in the form of high energy electrons	Phosphate bonds	Sugar	Nitrogenous base	Nucleotide
7.	The process by which cell breaks down glucose to give ATP is _____	Respiration	Photosynthesis	Mitosis	Meiosis
8.	Electron transport occurs in _____ of mitochondria	Cristae	Matrix	Cytoplasm	Grana
9.	In aerobic respiration, one glucose molecule releases _____ molecules of ATP	38	2	22	18

10.	In anaerobic respiration, one glucose releases _ molecules of ATP	2	38	22	18
11.	The function of DNA polymerase is _____	To join nucleotides to form new DNA strand	Break hydrogen bonds	Unwind DNA strand	Replicate DNA
12.	Glucose breaks down to form two pyruvate molecules in _	Glycolysis	Krebs cycle	Electron transport chain	Photosynthesis
13.	In krebs cycle pyruvate is broken down to give hydrogen and _____	Carbon dioxide	Oxygen	ATP	Energy
14.	DNA replication is forming multiple copies of _____	Chromosomes	RNA	Genetic material	Heredity
15.	Which of the following is not a step in mitosis?	Interphase	Prophase	Metaphase	Anaphase
16.	Cell grows and prepares for mitosis in _____ step	Interphase	Prophase	Metaphase	Anaphase
17.	After cell division the divided cells are reffered to as _____ cells	Daughter	Son	Offspring	Product
18.	Chromatids are joined by _____ in prophase	Centromeres	Lysosomes	Microtubules	Cytoskeleton
19.	In cytokinesis _____	Two daughter cells are formed	Two chromosomes are formed	Chromatids divide	Spindle fibres are formed
20.	In photosynthesis raw materials are _____	Carbon dioxide and water	Oxygen and water	Hydrogen and water	Carbon dioxide and light

Q. N	Topic 6: Composites in Construction, Termite Mound Architecture	Option A (correct Ans)	Option B	Option C	Option D
21.	Composites are	Two or more constituent materials	Materials with similar chemical properties	Materials with similar physical properties	Only one material with different shapes, colours
22.	This is not a beneficial aspect of composites	Heavy weight	Corrosion resistance	High durability	Design flexibility
23.	Composites are used	All the fields mentioned	Only in constructions	Only in medical applications	Only in transportation
24.	Composite materials are used in construction due to	Better than traditional building materials	Heavy weight	Different shapes available	Different colours available
25.	FRP composites are created using	Plastic Polymer Resin	Glass Polymer Resin	Ceramic Polymer Resin	Metal Polymer Resin
26.	FRP composites are created through the combination of a plastic polymer resin with strong	Fibers	Glass	Metal	Ceramic
27.	Bio-composites are fabricated by combining _____in a matrix material.	Natural fibers	Natural rubber	Synthetic fibres	Synthetic rubber
28.	This is an example of a natural bio composite	Wood	Rubber	Cotton	Jute
29.	Naturals fibers are abundant and have	Low harvesting costs	High harvesting costs	Low growth rate	High growth rate
30.	Synthetic fibers have	Recycling issues	Production issues	Transport issues	Raw material issues

31.	Synthetic fibers generates	Toxic byproducts	Non toxic byproducts	No byproducts	Neutral byproducts
32.	Biocomposites are made using	Reinforcement and matrice	Reinforcement and filler	Matrice and thermosets	Matrice and polymers
33.	This is not a natural fiber	Isocyanate	Cotton	Hemp	Flax
34.	Hybrid biocomposites are derived by	Fibers and matrix blending	Only fiber blending	Only matrix blending	Only polymer blending
35.	This is not expected in case of biocomposites	Rottening	Light weight	Recyclability	Local production
36.	The termite mounds sometimes have a diameter of _____metres	30	40	50	60
37.	The termites will not use this for mound construction	Wood	Soil	Saliva	Dung
38.	Although the termite mound appears solid, the structure is incredibly	Porous	Non porous	Wet	Hot
39.	The termite mounds are often occupied by	Snakes	Rats	Frogs	Bats
40.	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**
41.	Heat exchangers are devices designed to transfer heat between two or more	All of these	Vapors	Gases	liquids
42.	The heat transferring process in heat exchangers occurs through which separator	Solid	Liquid	Gas	vapour

43.	Which prevents the mixing of the fluids or direct fluid contact in heat exchangers	Solid separator	Liquid separator	Gas separator	vapour separator
44.	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
45.	Heat exchangers prevents vehicle engines	Overheat	Overspeed	Overcharge	Overcool
46.	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
47.	The tuna fish has core body temperature as like	Mammals	Reptiles	Insects	Worms
48.	The tuna fish was often called as	Warm blooded fish	Cold blooded fish	Slow moving fish	Tiny fish
49.	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
50.	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**
51.	Who drew the first aircraft design art?	Leonardo da vinci	Donatello	Michelangelo	Raphael
52.	The aircraft design art drawn during, 14th century was named as_____	Helical air screw	Eliptical air screw	Rounded air screw	Axial air screw
53.	The wright brothers' first flight name is_____	Flyer 1	Trailer 1	Arial 1	Helical 1
54.	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

55.	The contour of bird wing design shows	Minimum resistance for wind	Maximum resistance for wind	No resistance for wind	Threshold resistance for wind
56.	The aspect ratio in the wing design is	Length to width	Width to length	Length to thickness	Width to thickness
57.	In the birds wing the aspect ratio varies from	1.5-18	1.5-1.8	15-18	150-180
58.	As the aspect ratio increases in the wing design, the flight adaptability is	Better	Worse	No change	Cannot be determined
59.	When air moves over the wing, the air pressure above the wing	Decreases	Increases	Remains same	Cannot be determined
60.	When air moves over the wing, the air pressure below the wing	Increases	Decreases	Remains same	Cannot be determined
61.	The blades at the hind edge of the wings of an air plane are withdrawn while on	Gliding	Landing	Take off	On runway
62.	In the airplane, wing blades at the hind edge are extended and thrusted downward while	Landing	Take off	Gliding	On runway
63.	A bird can change its wing shape by the help of	Feathers	Legs	Knees	Beaks
64.	The inventor of modern helicopter	Igor sikorsky	Louis-charles	Jacques breguet	Wright brothers
65.	The helicopter analogy is with this living creature	Dragonfly	Butterfly	Honey bee	birds
66.	How many sets of wings the dragon fly consists?	Two	Three	Four	One
67.	Which part serves to stabilize the helicopter during its flight?	Tail rotor	Rotor mast	Rotor blades	Tail boom

68.	Helicopter changes course by altering angle of attack by the help of	Mechanical levers	Electrical cables	Landing skids	Cockpits
69.	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
70.	The high lift devices and control surfaces of airplane perform similar functions to which organ of birds?	Wings	Legs	Neck	Bill
71.	When dragon flies moves forward, what provides them the propulsion?	Rear wings	Front wings	Tail	Legs
72.	When the dragonfly moves forward, the front set of wings gives the dragonfly	Lift	Propulsion	Pressure	Rotation
73.	Absence of what causes the helicopter to rotate about it's own axis	Tail rotor	Rotor blades	Wing sections	Mechanical levers
74.	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
75.	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
76.	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

77.	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
78.	The civilian submarines are used for marine and freshwater research projects which is called as	Oceanography	Windography	Hydrography	Marinography
79.	The whale body contour almost resembles to	Submarine	Airplane	Helicopter	Cruise ship
80.	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
81.	Who proposed the information theory in communication industry?	Shannon	Feynman	Adleman	Watson
82.	DNA backbone, outside the double helix is made up of	Phosphate and sugar	Sugar and nitrogen	Nitrogen and carbon	Phosphate and nitrogen
83.	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
84.	This is the purine nitrogenous base of DNA	Guanine	Thymine	Cytosine	Uracil
85.	This is not the pyrimidine nitrogenous base	Adenine	Uracil	Cytosine	Thymine
86.	The idea of individual molecules could be used for computation was proposed by	Feynman	Shannon	Adleman	Watson

87.	The concept of DNA computing was introduced by	Adleman	Shannon	Feynman	Watson
88.	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
89.	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)
90.	Which is the limitation of DNA computing?	Time consuming laboratory procedures	Extremely dense information storage	Enormous parallel computing possibilities	Extraordinary energy efficiency
91.	The science of using computational tools and systems to answer problems of biology is	Bioinformatics	Synthetic Biology	Computational Biology	Evolutionary Biology
92.	Developing theories, algorithms and statistical models to analyze biological data is	Computational Biology	Synthetic Biology	Bioinformatics	Evolutionary Biology
93.	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.
94.	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

95.	The powerful computing power of DNA computers can be used in future for_____	All of these	Genetic programming	Language systems	Data Encryption
96.	What is SONAR?	Sound Navigation And Ranging	Solar Navigation And Response	Sound Navigation And Response	Solar Navigation And Ranging
97.	Which among the following is widely used submarine applications	SONAR	RADAR	LIDAR	Electromagnetic waves
98.	Which creatures use sound waves to locate objects _____	Bats	Butterflies	Dragonflies	Eagles
99.	Bats sense their direction through_____	Echolocation	Sense of sight	Wings	Nose
100	Along with the position information, bats can also discriminate objects based on	All of these	Shape	Size	Texture

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