

PU M Tech Computational Biology

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139 PU_2015_310

The approximate number of genes in human is:-

- ☐ 35000
- ☐ 15000
- ☐ 22000
- ☐ 30000

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A text processing programming language used for data extraction and reporting is called as:-

- ☐ awk
- ☐ filter
- ☐ grep
- ☐ text Processor

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Command line interpreter in UNIX is called as:-

- ☐ Kernel
- ☐ Compiler
- ☐ Utility
- ☐ Shell

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A periplasmoidal tapetum is:-

- ☐ two layers of cells surrounding an another locule
- ☐ a triploid tissue that is liquid
- ☐ a multinucleate mass of protoplasm
- ☐ one layer of cells surrounding an anther locule

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183 PU_2015_310

If the resultant force acting on a body of constant mass is zero, the body's momentum is:-

- ☐ always zero
- ☐ constant
- ☐ Increasing
- ☐ decreasing

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The uptake of plasmid DNA into bacterial cell is facilitated by:-

- ☐ Sodium chloride

- ☐ Calcium chloride
- ☐ Magnesium chloride
- ☐ Potassium chloride

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171 PU_2015_310

What type of bond is found in the fatty acid tail of an unsaturated fat that is not found in the fatty acid tail of a saturated fat?

- ☐ a double bond
- ☐ a covalent bond
- ☐ a single bond
- ☐ an ionic bond

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During hypothesis testing, a researcher is usually interested in supporting:-

- ☐ Statistical inference
- ☐ Null Hypothesis
- ☐ Null and Alternative Hypotheses
- ☐ Alternative Hypothesis

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133 PU_2015_310

The standard deviation of a sampling distribution is known as:-

- ☐ Sample error
- ☐ Variance
- ☐ Standard error
- ☐ Sampling error

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160 PU_2015_310

Megaphylls:-

- ☐ developed from roots
- ☐ typically have no vein system
- ☐ are characteristically green
- ☐ are found only in seed plants

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181 PU_2015_310

A toy train moves in a circle of 8 meters radius with a speed of 4 meters per second. What is the magnitude of the acceleration of the train?

- ☐ 4 METERS PER SECOND SQUARED
- ☐ 6 METERS PER SECOND SQUARED
- ☐ 2 METERS PER SECOND SQUARED
- ☐ 8 METERS PER SECOND SQUARED

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Which of the following symbol represents a population parameter?

- ☐ SD
- ☐ R
- ☐ σ
- ☐ SE

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Mitochondria carry out oxidative phosphorylation by means of:-

- ☐ Conformational coupling
- ☐ Photophosphorylation
- ☐ Photorespiration
- ☐ Chemiosmotic coupling

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The deposit callose is best stained with:-

- ☐ toluidine blue-O
- ☐ safranin
- ☐ resorcin blue
- ☐ fast green

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The unique address of a web page is called as:-

- ☐ Web address
- ☐ Uniform resource locator
- ☐ Address locator
- ☐ Hyperlink

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A right triangle with sides 3 cm, 4 cm and 5 cm is rotated the side of 3 cm to form a cone. The volume of the cone so formed is:-

- ☐ $15\pi \text{ cm}^3$
- ☐ $16\pi \text{ cm}^3$
- ☐ $12\pi \text{ cm}^3$
- ☐ $18\pi \text{ cm}^3$

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What hormone is commonly expressed in transgenic livestock to increase their growth and productivity?

- ☐ bGH (bovine growth hormone)

- ☐ Insulin
- ☐ erythropoietin
- ☐ clotting factor VIII

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111 PU_2015_310

Software designed to protect a computer from unauthorized access through network is called as:-

- ☐ User Management
- ☐ Gateway
- ☐ Protocol
- ☐ Firewall

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The UNIX command 'mv protein.txt enzyme.txt' will:-

- ☐ Copy the contents of enzyme.txt to protein.txt
- ☐ Rename the file protein.txt to enzyme.txt
- ☐ Copy the contents of protein.txt to enzyme.txt
- ☐ Append the contents of protein.txt to enzyme.txt

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Hemolytic disease of the newborn caused by Rh blood group incompatibility requires maternal antibody to enter the fetal bloodstream. Therefore, the mediator of this disease is:-

- ☐ IgM
- ☐ IgE
- ☐ IgA
- ☐ IgG

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Induced electric currents can be explained using which of the following laws?

- ☐ Faraday's Law
- ☐ Gauss's Law
- ☐ Ohm's Law
- ☐ Ampere's Law

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The errors showed by the language compilers are called as:-

- ☐ syntax errors
- ☐ internal errors
- ☐ language errors
- ☐ logical errors

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As defined in physics, work is:-

- ☐ always a positive quantity
- ☐ a scalar quantity
- ☐ a vector quantity
- ☐ always zero

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When a physical property such as charge exists in discrete "packets" rather than in continuous amounts, the property is said to be:-

- ☐ discontinuous
- ☐ abrupt
- ☐ quantized
- ☐ noncontinuous

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The fruit of a cucumber is termed a(n):-

- ☐ achene
- ☐ hesperidium
- ☐ pepo
- ☐ drupe

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In DBMS collection of records make a:-

- ☐ Row
- ☐ Sheet
- ☐ Field
- ☐ Table

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165 PU_2015_310

Delesse conceived the idea that the area of a substance within a larger area is equivalent to the _____ within a larger volume.

- ☐ volume
- ☐ absolute area
- ☐ relative area
- ☐ surface density

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110 PU_2015_310

Which one of the following is NOT true about Random Access Memory? It is a/an:-

- ☐ Primary memory

- ☐ Randomly select any location of memory to store data
- ☐ Temporary storage
- ☐ Not possible to write fresh information into it

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176 PU_2015_310

A Newton is equal to which of the following?

- ☐ meter per second squared
- ☐ kilogram per meter-second
- ☐ kilogram-meter per second squared
- ☐ kilogram-meter per second

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SQL command to change some of the values of columns of a table is:-

- ☐ UPDATE
- ☐ MODIFY
- ☐ EDIT
- ☐ CHANGE

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186 PU_2015_310

For a negative point charge, the electric field vectors:-

- ☐ Point radially away from the charge
- ☐ Circle the charge
- ☐ Cross at infinity
- ☐ Point radially in toward the charge

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The work done by a friction force is:-

- ☐ Always zero
- ☐ Always negative
- ☐ Always positive
- ☐ Either positive or negative depending upon the situation

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166 PU_2015_310

DNA staining is done by:-

- ☐ Giesma staining
- ☐ Crystal violet
- ☐ Feulgen staining
- ☐ Methylene blue

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The C language construct that allows a variable to be tested for equality against a list of values is called as:-

- ☐ Continue
- ☐ Switch
- ☐ Break
- ☐ While

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The rate of synonymous nucleotide substitution is high at:-

- ☐ Fourth codon position
- ☐ Third codon position
- ☐ First codon position
- ☐ Second codon position

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187 PU_2015_310

Iron is what type of magnetic material? Is it:-

- ☐ paramagnetic
- ☐ diamagnetic
- ☐ ferromagnetic
- ☐ non-magnetic

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What is the hexadecimal equivalent of decimal number 123?

- ☐ B7
- ☐ 7C
- ☐ 7B
- ☐ C7

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Two forces have magnitudes of 11 newtons and 5 newtons. The magnitude of their sum could NOT be equal to which of the following values?

- ☐ 16 newtons
- ☐ 5 newtons
- ☐ 7 newtons
- ☐ 9 newtons

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In physics, a radian per second is a unit of:-

- ☐ Angular momentum

- ☐ Angular displacement
- ☐ Angular acceleration
- ☐ Angular velocity

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Connecting link between annelids and arthropods is:-

- ☐ *Aplysia*
- ☐ *Limulus*
- ☐ *Peripatus*
- ☐ *Neopilina*

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The conserved region in a homeotic gene is known as:-

- ☐ Homeobox
- ☐ Homeosplice
- ☐ Homeoregion
- ☐ Homeodomain

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Electric current may be expressed in which one of the following units?

- ☐ coulombs/volt
- ☐ joules/coulomb
- ☐ coulombs/second
- ☐ ohms/second

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Work is equal to which of the following?

- ☐ The dot product of force and displacement
- ☐ The product of force times time
- ☐ The cross product of force and displacement
- ☐ Force divided by time

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120 PU_2015_310

Which one of the following statement is NOT true? UNIX command cat will:-

- ☐ Combining two or more files
- ☐ Removing the given file
- ☐ Display the content of a given file
- ☐ Creating new files

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An application software with rectangular grid, which allows text, numbers, and complex functions to be entered into a matrix of thousands of individual cells is called as:-

- ☐ Word document
- ☐ Printed document
- ☐ Spread Sheet
- ☐ Photo editor

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The UNIX command 'head -n 5 protein.txt' will display the:-

- ☐ first five lines of the file protein.txt
- ☐ first five columns of the file protein.txt
- ☐ last five columns of the file protein.txt
- ☐ last five lines of the file protein.txt

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The force acting between two point charges can be computed using which of the following laws?

- ☐ Ohm's Law
- ☐ Ampere's Law
- ☐ Newton's Second Law
- ☐ Coulomb's Law

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Computer file system architecture FAT stands for:-

- ☐ File Access Table
- ☐ File Access Track
- ☐ File Allocation Table
- ☐ File Allocation Track

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113 PU_2015_310

C function that allocates memory is:-

- ☐ allow()
- ☐ malloc()
- ☐ free()
- ☐ memo()

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161 PU_2015_310

An S2 layer of a cell wall is found:-

- ☐ outside of S1 layer

- ☐ adjacent to the cell membrane
- ☐ adjacent to vacuolar membrane (tonoplast)
- ☐ outside of S3 layer

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If the frequency of two alleles in a Hardy Weinberg population is 0.6 and 0.4, the frequency of heterozygote genotype is:-

- ☐ 1.00
- ☐ 0.48
- ☐ 0.24
- ☐ Zero

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Use of alkaline phosphatase is to:-

- ☐ Remove terminal phosphates from both end
- ☐ Not related to the removal of terminal phosphates
- ☐ Remove terminal phosphates from 3'end
- ☐ Remove terminal phosphates from 5'end

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Telomeric sequences are found in:-

- ☐ HAC
- ☐ PAC
- ☐ YAC
- ☐ BAC

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A class of binary encodings of decimal numbers where each decimal digit is represented by a fixed number of bits four or eight is called as:-

- ☐ Binary Coded Decimal
- ☐ Binary Digit
- ☐ Binary Encoded
- ☐ Binary Number

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The standard error can be minimized by:-

- ☐ Stratified sampling
- ☐ Repeated sampling
- ☐ Small sampling
- ☐ Large sampling

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Data that does not change throughout the program/algorithm is called as:-

- ☐ Constant
- ☐ Vector
- ☐ Scalar variable
- ☐ Variable

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What is the binary equivalent of decimal number 36?

- ☐ 100111
- ☐ 100110
- ☐ 100101
- ☐ 100100

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Dendritic branches within the cuticle are composed of:-

- ☐ suberin
- ☐ protein
- ☐ lipids
- ☐ polysaccharides

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118 PU_2015_310

The UNIX command that allows one to search one file or multiple files for lines that contain a pattern is called as:-

- ☐ search
- ☐ grep
- ☐ where
- ☐ findfile

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130 PU_2015_310

The cut-off to decide the rejection of a null hypothesis is:-

- ☐ Gamma level
- ☐ Delta level
- ☐ Beta level
- ☐ Alpha level

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HPLC uses the following for detection:-

- ☐ UV light

- ☐ gamma-rays
- ☐ X-rays
- ☐ IR rays

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238 PU_2015_310

The hysteresis cycle for the material of a permanent magnet is:-

- ☐ short and wide
- ☐ short and narrow
- ☐ tall and narrow
- ☐ tall and wide

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When compared to Red light, blue light has:-

- ☐ Equal energy
- ☐ Lower energy
- ☐ Higher energy
- ☐ Medium energy

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The time period of a communication satellite is:-

- ☐ 1 hour
- ☐ 24 hours
- ☐ 30 days
- ☐ 365 days

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231 PU_2015_310

Average kinetic energy of molecules is:-

- ☐ Inversely proportional to absolute temperature
- ☐ Directly proportional to absolute temperature
- ☐ Directly proportional to square of absolute temperature
- ☐ Inversely proportional to square of absolute temperature

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227 PU_2015_310

Thermal expansion of a material:-

- ☐ occurs at the same rate for all liquids and gases
- ☐ occurs only in solids
- ☐ increase the weight of the material
- ☐ decreases the density of the material

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The slope of the graph plotted with potential energy against vertical position represents:-

- ☐ weight of the body
- ☐ acceleration
- ☐ velocity
- ☐ kinetic energy

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233 PU_2015_310

A car starts from rest with a constant acceleration of 10 ms^{-2} . The velocity of that car after traveling for half a kilometer will be:-

- ☐ $\sqrt{10} \text{ ms}^{-1}$
- ☐ 100 ms^{-1}
- ☐ 5 ms^{-1}
- ☐ 50 ms^{-1}

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R – O – R represents which class of organic compounds?

- ☐ esters
- ☐ alcohols
- ☐ acids
- ☐ ethers

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239 PU_2015_310

Which of the following supports the transverse nature of the light wave?

- ☐ polarization
- ☐ interference
- ☐ diffraction
- ☐ wave motion of light

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248 PU_2015_310

Which compound is a saturated hydrocarbon?

- ☐ ethene
- ☐ ethanol
- ☐ ethyne
- ☐ ethane

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237 PU_2015_310

According to Curie-Weiss law, the susceptibility of a paramagnetic material with absolute temperature T is:-

- ☐ $\chi \propto T^2$

☐ $\chi \propto T^{-2}$

☐ $\chi \propto T$

☐ $\chi \propto T^{-1}$

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Length of covalent bond is in the order of:-

☐ cm

☐ m

☐ mm

☐ Å

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230 PU_2015_310

If a capacitor of capacity C is charged with charge Q at a potential of V, then the potential energy stored in the capacitor is:-

☐ QV

☐ $\frac{1}{2} CV$

☐ $\frac{1}{2} QV$

☐ CV

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pH is a measure of:-

☐ pressure of hydrogen

☐ hydrogen ion concentration

☐ hydroxyl ion concentration

☐ All the above

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246 PU_2015_310

If a particle moves in a circle describing equal angles in equal intervals of time, the velocity vector:-

☐ remains constant

☐ changes in magnitude

☐ changes in direction

☐ changes both in direction and magnitude

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234 PU_2015_310

A square metallic loop of side 'a' and carries a current i. The magnetic field at the centre of the loop is:-

☐ $\propto a$

☐ $\propto 1/a$

☐ $\propto a^2$

☐ independent of a

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226 PU_2015_310

As per Kepler's third law, the square of the time period of a planet circulating in an orbit of radius R is proportional to:-

- ☐ R^2
- ☐ R^3
- ☐ R
- ☐ R^{-2}

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247 PU_2015_310

R – OH represents which class of organic compounds?

- ☐ alkanes
- ☐ acids
- ☐ alcohols
- ☐ ethers

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236 PU_2015_310

The flux leaving any closed surface per unit volume in a vector field A is:-

- ☐ zero
- ☐ div A
- ☐ curl A
- ☐ grad A

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270 PU_2015_310

The correct order of increasing bond length of C – H, C – O, C – C and C = C is:-

- ☐ $\tilde{C}H < C=C < C-O < \tilde{C}C$
- ☐ $\tilde{C}H < \tilde{C}O < C-C < C=C$
- ☐ $\tilde{C}O < \tilde{C}H < \tilde{C}C < C=C$
- ☐ $\tilde{C}C < C=C < \tilde{C}O < \tilde{C}H$

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268 PU_2015_310

In aqueous solution glucose remains as:-

- ☐ Only in open chain form
- ☐ Only in furanose forms
- ☐ Only in pyranose form
- ☐ In all three forms in equilibrium

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Tautomers have:-

- ☐ a) Same chemical formula

- ☐ b) Same physical properties
- ☐ c) Both (a) and (b)
- ☐ d) Different chemical formula

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Insulin regulates the metabolism of:-

- ☐ glucose
- ☐ vitamins
- ☐ amino acids
- ☐ minerals

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273 PU_2015_310

At a certain location in a gene, the non-template strand of DNA has the sequence GAA. A mutation alters the triplet to GAG. This type of mutation is called:-

- ☐ nonsense
- ☐ missense
- ☐ frame-shift
- ☐ silent

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271 PU_2015_310

ClogP is a measure of:-

- ☐ Log
- ☐ Reactivity
- ☐ Pressure
- ☐ Lipophilicity

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261 PU_2015_310

Which one of the following is a covalent crystal?

- ☐ Ice
- ☐ Rock salt
- ☐ Dry ice
- ☐ Quartz

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278 PU_2015_310

AIDS is caused by a human retrovirus that specifically binds and kills:-

- ☐ B lymphocytes.
- ☐ CD4+ T lymphocytes
- ☐ Neutrophils
- ☐ CD8+ T lymphocyte

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274 PU_2015_310

Heterochromatin:-

- ☐ is responsible for all negative transcriptional control
- ☐ clumps the X chromosome in human males
- ☐ contains more DNA than does euchromatin
- ☐ is transcriptionally inactive

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266 PU_2015_310

Stereoisomers:-

- ☐ have different chemical formula
- ☐ are mirror images
- ☐ are non super-imposable mirror images
- ☐ all the above

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265 PU_2015_310

Geometrical isomers have:-

- ☐ a) same chemical formula
- ☐ b) same physical properties
- ☐ c) Both (a) and (b)
- ☐ d) Different physical properties

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277 PU_2015_310

A Barr body in human beings is:-

- ☐ the active X chromosome in a female somatic cell
- ☐ the inactive X chromosome in a female somatic cell
- ☐ the inactive Y chromosome in a male cell
- ☐ the active X chromosome in a male somatic cell

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262 PU_2015_310

Which is a peptide bond?

- ☐ $-\text{CH}_2-\text{NH}_2$
- ☐ $-\text{CO}-\text{NH}-$
- ☐ $-\text{CH}_2-\text{O}-\text{CH}_2-$
- ☐ $-\text{CH}_2-\text{CH}_2-$

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The number of disulphide linkages present in insulin are:-

- ☐ 1
- ☐ 4

- ☐ 3
- ☐ 2

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267 PU_2015_310

Glucose contains in addition to aldehyde group:-

- ☐ three primary OH and- two secondary OH groups
- ☐ one secondary OH and four primary OH groups
- ☐ one primary OH and four secondary OH groups
- ☐ two primary OH and three secondary OH groups

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260 PU_2015_310

During the formation of a chemical bond:-

- ☐ energy increases
- ☐ electron-electron repulsion becomes more than the nucleus-electron attraction
- ☐ energy of the system does not change
- ☐ energy decreases

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279 PU_2015_310

Which is a characteristic of dicots?

- ☐ Parallel leaf veins
- ☐ Roots develop from radicle
- ☐ Secondary growth usually absent
- ☐ Flower parts in multiples of three

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272 PU_2015_310

Which best describes plasmids?

- ☐ Plasmids are transgenic bacteria
- ☐ Plasmids are enzymes used to cut DNA at specific locations
- ☐ Plasmids are clones of bacteria or DNA segments
- ☐ Plasmids are circular pieces of DNA that can be used to carry foreign DNA into cells such as bacteria

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Allosteric inhibition of an enzyme involves which of the following?

- ☐ Cooperative binding of substrate to an enzyme that does not deviate from normal Michaelis-Menten kinetics
- ☐ Cooperative binding of a substrate to an enzyme with four or more subunits
- ☐ Binding of an inhibitor to a site other than the substrate binding site
- ☐ Binding of an inhibitor competitively to the substrate binding site

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Antibodies are:-

- ☐ also called as immunoglobulins
- ☐ glycoproteins made of heavy and light chains
- ☐ produced by B cells differentiated into plasma cells
- ☐ All of the above

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113 PU_2016_M.Tech_310_Computational Biology_E

With a normal diet, the percentage of daily calories that come from proteins is about:-

- ☐ 30 percent
- ☐ 10 percent
- ☐ 20 percent
- ☐ 40 percent

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140 PU_2016_M.Tech_310_Computational Biology_E

A compound that has a desirable properties to become a drug is called:-

- ☐ Lead
- ☐ Fit Compound
- ☐ Fit Drug
- ☐ Hit

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129 PU_2016_M.Tech_310_Computational Biology_E

Which of the following colors of visible light has the longest wavelength?

- ☐ Red
- ☐ Green
- ☐ Yellow
- ☐ Violet

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204 PU_2016_M.Tech_310_Computational Biology_E

Naturally occurring polymers are:-

- ☐ starch and nylon
- ☐ protein and plastic
- ☐ starch and cellulose
- ☐ protein and nylon

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185 PU_2016_M.Tech_310_Computational Biology_E

If a material is heated and annealed, then its elasticity:-

- ☐ Will not change
- ☐ Becomes zero
- ☐ Decreases

- ☐ Increases

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193 PU_2016_M.Tech_310_Computational Biology_E

If an electron and a proton have the same de-Broglie wavelength, then the kinetic energy of the electron is:-

- ☐ less than that of the proton
- ☐ zero
- ☐ equal to that of the proton
- ☐ more than that of the proton

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109 PU_2016_M.Tech_310_Computational Biology_E

Pulmonary artery differs from pulmonary vein in having:-

- ☐ a) Thick wall
- ☐ b) Thin wall
- ☐ c) Valves
- ☐ d) Both (b) and (c)

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209 PU_2016_M.Tech_310_Computational Biology_E

The main difference between an acid and a base is that:-

- ☐ acids donate hydrogen ions in water while bases accept hydrogen ions
- ☐ acids are polar molecules and bases are not
- ☐ bases donate hydrogen ions in water while acids accept hydrogen ions
- ☐ bases are polar molecules and acids are not

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If $\Phi = x^2 - xyz$, then $\nabla\Phi$ at (4, 3, 2) is:-

- ☐ $2i - 3j + 2k$
- ☐ $4i - 3j + 2k$
- ☐ $16i - 3j + 2k$
- ☐ $2i - 8j + 12k$

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161 PU_2016_M.Tech_310_Computational Biology_E

Mention which one of the following is IR active?

- ☐ $\text{CH}_2 = \text{CH}_2$, CH Stretching
- ☐ $\text{CH}_2 = \text{CHCl}$

- ☐ $\text{CH}_3 - \text{CH}_3$
- ☐ $\text{CH}_2 = \text{CH}_2$, CH_2 twist

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One joule is the energy required to:-

- ☐ Move a mass of 1 gm by 1 cm distance by a force of 1 Newton
- ☐ Raise the temperature of 1 gm of water by 1°C
- ☐ Move a mass of 1 kg by 1 m distance by a force of 1 Newton
- ☐ Raise the temperature of 1 kg of water by 1°C

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181 PU_2016_M.Tech_310_Computational Biology_E

When a source is going away from a stationary observer, with a velocity equal to that of sound in air, then the frequency heard by the observer will be:-

- ☐ Half
- ☐ Double
- ☐ Same
- ☐ One third

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Natural amino acids found in following conformation:-

- ☐ L and D
- ☐ L
- ☐ D and S
- ☐ D and R

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196 PU_2016_M.Tech_310_Computational Biology_E

Two charges repel each other with a force of 10^{-4} N when they are 10 cm apart. When they are brought to 5 cm apart, the force will be:-

- ☐ 0.5×10^{-4} N
- ☐ 0.25×10^{-4} N
- ☐ 2×10^{-4} N
- ☐ 4×10^{-4} N

15 of 100

125 PU_2016_M.Tech_310_Computational Biology_E

The value of 1KWH is:-

- ☐ 3.6×10^6 J

- ☐ 3.6 X 10⁵J
- ☐ 3.6 X 10⁹ J
- ☐ 3.6 X 10⁷ J

16 of 100

124 PU_2016_M.Tech_310_Computational Biology_E

A mixture of single strand circular DNA, supercoiled DNA, linear DNA and relaxed DNA were separated on agarose gel, which one of them migrates fast?

- ☐ Super coiled DNA
- ☐ Relaxed DNA
- ☐ Single stranded circular DNA
- ☐ Linear double stranded DNA

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173 PU_2016_M.Tech_310_Computational Biology_E

L and D form are described based on the structure of:-

- ☐ Silver
- ☐ Glyceraldehyde
- ☐ Alanine
- ☐ Methanol

18 of 100

189 PU_2016_M.Tech_310_Computational Biology_E

A convex and a concave lens separated by distance d are put in contact. The focal length of the combination:-

- ☐ becomes 0
- ☐ increases
- ☐ decreases
- ☐ remains the same

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132 PU_2016_M.Tech_310_Computational Biology_E

Which of the following best completes the statement: The calorie is the amount of heat needed to raise?

- ☐ 1 gram of water 1 degree Celsius
- ☐ 1 kilogram of water 1 degree Kelvin
- ☐ 1 gram of water 1 degree Rankin
- ☐ 1 kilogram of water 1 degree Celsius

20 of 100

184 PU_2016_M.Tech_310_Computational Biology_E

Which of the following phenomenon cannot take place with sound wave?

- ☐ Interference
- ☐ Polarization
- ☐ Diffraction
- ☐ Reflection

21 of 100

217 PU_2016_M.Tech_310_Computational Biology_E

The property of a substance to absorb moisture from the air on exposure is called:-

- ☐ osmosis
- ☐ efflorescence
- ☐ deliquescence
- ☐ desiccation

22 of 100

180 PU_2016_M.Tech_310_Computational Biology_E

Speed of three molecules of a gas are 3 ms^{-1} , 4 ms^{-1} and 5 ms^{-1} . The r.m.s. speed of these molecule is:-

- ☐ 4 ms^{-1}
- ☐ 7.1 ms^{-1}
- ☐ 4.08 ms^{-1}
- ☐ 5 ms^{-1}

23 of 100

200 PU_2016_M.Tech_310_Computational Biology_E

The pH of a solution is determined by:-

- ☐ environmental effect
- ☐ relative concentration of acids and bases
- ☐ dielectric constant of the medium
- ☐ concentration of salt

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144 PU_2016_M.Tech_310_Computational Biology_E

The tool for identification of motifs:-

- ☐ PROSPECT
- ☐ COPIA
- ☐ BLAST
- ☐ Pattern hunter

25 of 100

201 PU_2016_M.Tech_310_Computational Biology_E

Among the following, the compound that contains ionic, covalent and coordinate linkage is:-

- ☐ NH_4Cl
- ☐ CaO
- ☐ NaCl
- ☐ NH_3

26 of 100

100 PU_2016_M.Tech_310_Computational Biology_E

Movement of solute against concentration gradient is called:-

- ☐ Diffusion
- ☐ Osmosis
- ☐ Active transport
- ☐ Passive transport

27 of 100

116 PU_2016_M.Tech_310_Computational Biology_E

Retinol and retinal are interconverted requiring dehydrogenase or reductase in the presence of:-

- ☐ FAD
- ☐ NAD or NADP
- ☐ NADPH
- ☐ $\text{NADH} + \text{H}^+$

28 of 100

149 PU_2016_M.Tech_310_Computational Biology_E

Shotgun cloning differs from the clone-by-clone method in which of the following ways?

- ☐ Genetic markers are used to identify clones in shotgun cloning
- ☐ Computer software assembles the clones in the clone-by-clone method
- ☐ The location of the clone being sequenced is known relative to other clones within the genomic library in shotgun cloning
- ☐ The entire genome is sequenced in the clone-by-clone method, but not in shotgun sequencing

29 of 100

105 PU_2016_M.Tech_310_Computational Biology_E

Which one is the cofactor of carbonic anhydrase?

- ☐ Fe
- ☐ Cu
- ☐ Zn
- ☐ Mg

30 of 100

141 PU_2016_M.Tech_310_Computational Biology_E

Identify which of the following terms refers to the arrangement of different protein subunits in a multiprotein complex.

- ☐ Secondary structure
- ☐ Quaternary structure
- ☐ Tertiary structure
- ☐ Primary structure

31 of 100

128 PU_2016_M.Tech_310_Computational Biology_E

Induced electric currents can be explained using which of the following laws?

- ☐ Faraday's Law
- ☐ Gauss's Law
- ☐ Ohm's Law
- ☐ Ampere's Law

32 of 100

101 PU_2016_M.Tech_310_Computational Biology_E

Synapsis occurs between:-

- ☐ A male and a female gamete
- ☐ mRNA and Ribosomes
- ☐ Two homologous chromosomes
- ☐ Spindle fibres and centromere

33 of 100

148 PU_2016_M.Tech_310_Computational Biology_E

The dipole moments of BF_3 , H_2S and H_2O can be arranged as:-

- ☐ $\text{BF}_3 < \text{H}_2\text{S} > \text{H}_2\text{O}$
- ☐ $\text{BF}_3 > \text{H}_2\text{S} > \text{H}_2\text{O}$
- ☐ $\text{BF}_3 < \text{H}_2\text{S} < \text{H}_2\text{O}$
- ☐ $\text{BF}_3 > \text{H}_2\text{O} < \text{H}_2\text{S}$

34 of 100

112 PU_2016_M.Tech_310_Computational Biology_E

An example of a transamination process is:-

- ☐ Glutamate = α -ketoglutarate + NH_3
- ☐ Aspartate + hexanoic acid = glutamate + oxaloacetate
- ☐ Glutamate = hexanoic acid + NH_3
- ☐ Aspartate + α ketoglutarate = glutamate + oxaloacetate

35 of 100

197 PU_2016_M.Tech_310_Computational Biology_E

Solar spectrum is an example for:-

- ☐ line emission spectrum
- ☐ continuous emission spectrum
- ☐ line absorption spectrum
- ☐ band absorption spectrum

36 of 100

160 PU_2016_M.Tech_310_Computational Biology_E

The basic difference between eukaryote and prokaryote is:-

- ☐ Presence of nucleus in prokaryote
- ☐ Presence of plasma membrane in eukaryote
- ☐ Presence of DNA in prokaryote
- ☐ Presence of nucleus in eukaryote

37 of 100

165 PU_2016_M.Tech_310_Computational Biology_E

Which element is most likely to form a covalent compound?

- ☐ Cesium
- ☐ Magnesium
- ☐ Sodium
- ☐ Carbon

38 of 100

164 PU_2016_M.Tech_310_Computational Biology_E

Ramachandran plot discusses about:-

- ☐ Phi-Psi correlation diagram
- ☐ Phi-Psi energy diagram
- ☐ Phi-Psi scatter diagram
- ☐ Phi-Psi steric contour diagram

39 of 100

212 PU_2016_M.Tech_310_Computational Biology_E

D-Alanine and L-Alanine are technically known as:-

- ☐ enantiomers
- ☐ polymer
- ☐ epimers
- ☐ anomers

40 of 100

137 PU_2016_M.Tech_310_Computational Biology_E

A 10 kilogram mass rests on a horizontal frictionless surface. A horizontal force of 5 Newtons is applied to the mass. After the force has been applied for 1 second, the velocity of the mass is:-

- ☐ 0.5 meters per second
- ☐ 0 meters per second
- ☐ 50 meters per second
- ☐ 5 meters per second

41 of 100

104 PU_2016_M.Tech_310_Computational Biology_E

The exchange of gases between inhaled air and blood is referred as _____.

- ☐ External respiration
- ☐ Cellular respiration
- ☐ Internal respiration
- ☐ Circulatory respiration

42 of 100

172 PU_2016_M.Tech_310_Computational Biology_E

Glucose can have following conformation:-

- ☐ Boat
- ☐ Boat and chair
- ☐ Staggered
- ☐ Eclipse

43 of 100

152 PU_2016_M.Tech_310_Computational Biology_E

Which of the following is a balanced equation?

- ☐ $\text{C}_2\text{H}_6 + 3\text{O}_2 \rightarrow \text{CO}_2 + 3\text{H}_2\text{O}$
- ☐ $\text{Na}_2\text{CO}_3 + \text{HCl} \rightarrow 2\text{NaCl} + \text{CO}_2 + \text{H}_2\text{O}$
- ☐ $\text{CH}_3\text{OH} + \text{HCl} \rightarrow \text{CH}_3\text{Cl} + \text{H}_2\text{O}$
- ☐ $\text{C}_3\text{H}_8 + 4\text{O}_2 \rightarrow 4\text{H}_2\text{O} + 3\text{CO}_2$

44 of 100

136 PU_2016_M.Tech_310_Computational Biology_E

The Millikan experiment showed that electric charge was:-

- ☐ quantized
- ☐ positive
- ☐ negative
- ☐ unmeasurable

45 of 100

213 PU_2016_M.Tech_310_Computational Biology_E

Bromine is a:-

- ☐ red liquid
- ☐ highly inflammable gas
- ☐ black solid
- ☐ colourless gas

46 of 100

121 PU_2016_M.Tech_310_Computational Biology_E

Bohr effect is:-

- ☐ Shifting of oxyhemoglobin dissociation curve to the right
- ☐ Shifting of oxyhemoglobin dissociation curve to the left
- ☐ Ability of hemoglobin to combine with O₂
- ☐ Exchange of chloride with carbonate

47 of 100

108 PU_2016_M.Tech_310_Computational Biology_E

'Dup' sound is produced during closure of:-

- ☐ a) Semilunar valves
- ☐ b) Bicuspid valve
- ☐ c) Tricuspid valve
- ☐ d) Both (b) and (c)

48 of 100

117 PU_2016_M.Tech_310_Computational Biology_E

Template/lock and key theory of enzyme action is supported by:-

- ☐ Compounds similar to substrate inhibit enzyme activity
- ☐ Enzymes speed up reaction
- ☐ Enzymes determine the direction of reaction
- ☐ Enzymes occur in living beings and speed up certain reactions

49 of 100

188 PU_2016_M.Tech_310_Computational Biology_E

A body of mass 4 kg is accelerated upon by a constant force, travels a distance of 5 m in the first second and a distance of 2 m in the third second. The force acting on the body is:-

- ☐ 2 N
- ☐ 8 N
- ☐ 12 N
- ☐ 4 N

50 of 100

208 PU_2016_M.Tech_310_Computational Biology_E

In methane, the hydrogen atoms are spatially oriented toward the centers of a regular:-

- ☐ hexagon
- ☐ tetrahedron
- ☐ square
- ☐ pentagon

51 of 100

169 PU_2016_M.Tech_310_Computational Biology_E

Beryllium atom has 4 protons, 5 neutrons and 4 electrons. What is the mass number of this atom?

- ☐ 9
- ☐ 8
- ☐ 5
- ☐ 4

52 of 100

145 PU_2016_M.Tech_310_Computational Biology_E

Which one of the following is the correct expression?

- ☐ Weight of an atom = one gm/6.023 10^{23}
- ☐ Absolute mass of an atom in gm = Atomic wt. in a.m.u $\times 1.66 \times 10^{-24}$ gm
- ☐ Atomic wt. = Mass of an atom/Mass of C^{12} atom
- ☐ 1 a.m.u. = Mass of one C^{12} atom

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156 PU_2016_M.Tech_310_Computational Biology_E

Zwitter ions are the one:-

- ☐ Having positive ion and free radicals
- ☐ Having positive and negative ions
- ☐ Having Neutral and free radicals
- ☐ Having Negative ions and free radicals

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133 PU_2016_M.Tech_310_Computational Biology_E

If the resultant force acting on a body of constant mass is zero, the body's momentum is:-

- ☐ always zero
- ☐ Increasing
- ☐ decreasing
- ☐ constant

55 of 100

176 PU_2016_M.Tech_310_Computational Biology_E

In the case of uniform circular motion, the physical quantity that does not remain constant is:-

- ☐ linear momentum
- ☐ kinetic energy
- ☐ speed
- ☐ mass

56 of 100

168 PU_2016_M.Tech_310_Computational Biology_E

The word Alkali came from:-

- ☐ Greek
- ☐ Arabic
- ☐ Sanskrit
- ☐ Italy

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205 PU_2016_M.Tech_310_Computational Biology_E

A solution with pH = 5 is _____ than a solution with pH = 7.

- ☐ 2 times more basic
- ☐ 1000 times more basic
- ☐ 10 times more basic
- ☐ 100 times more basic

58 of 100

216 PU_2016_M.Tech_310_Computational Biology_E

Pubchem has information regarding:-

- ☐ DNA
- ☐ Bio-activity
- ☐ Chemical structure & Bio-activity
- ☐ Chemical structure

59 of 100

157 PU_2016_M.Tech_310_Computational Biology_E

Benzene is most stable due to:-

- ☐ The sigma bonding system hybridized to create a flat shape which gives benzene its symmetry
- ☐ The resonance of Pi electrons
- ☐ S-orbitals have created a hybridized system that has become delocalized
- ☐ Its chemical nature

60 of 100

192 PU_2016_M.Tech_310_Computational Biology_E

Hydrogen atom does not emit X-rays because:-

- ☐ Energy levels in it are very close to each other
- ☐ Energy levels in it are far apart
- ☐ It contains only a single electron
- ☐ Its size is very small

61 of 100

222 PU_2016_M.Tech_310_Computational Biology_M

Which of the following is not an IR vibrational mode?

- ☐ Rocking
- ☐ Rolling
- ☐ Stretching
- ☐ Scissoring

62 of 100

221 PU_2016_M.Tech_310_Computational Biology_M

The sequence of letters 'WYQN' will represent:-

- ☐ Tryptophan, glutamine, tryptophan, asparagine
- ☐ Tryptophan, tyrosine, glutamic acid, asparagine
- ☐ Tryptophan, tyrosine, glutamine, asparagine
- ☐ Glutamine, tyrosine, tryptophan, aspartic acid

63 of 100

237 PU_2016_M.Tech_310_Computational Biology_M

A radioisotope used to label protein differentially from nucleic acids is:-

- ☐ ^{35}S
- ☐ ^{14}C
- ☐ ^{15}N
- ☐ ^{32}P

64 of 100

239 PU_2016_M.Tech_310_Computational Biology_M

The hyperchromic effect refers to:-

- ☐ a maximum rate of denaturation versus temperature for duplex DNA
- ☐ an increase in the absorbance of light at 260 nm upon denaturation of DNA
- ☐ a change in the optical rotator dispersion of a DNA solution upon heating
- ☐ An increase in absorbance of light at 260 nm when DNA-RNA hybrids are annealed

65 of 100

246 PU_2016_M.Tech_310_Computational Biology_M

Actin filaments found in all of the following *except* the:-

- ☐ flagella of bacteria
- ☐ contractile ring of dividing animal cells
- ☐ sarcomeres of skeletal muscle cells
- ☐ microvilli of the intestinal brush border

66 of 100

238 PU_2016_M.Tech_310_Computational Biology_M

A non-supercoiled B-DNA molecule is composed of 4800 bps. How many helical turn are present?

- ☐ 380
- ☐ 480
- ☐ 10
- ☐ not possible to find

67 of 100

252 PU_2016_M.Tech_310_Computational Biology_M

For what values of 'a' the three straight lines $3x + y + 2 = 0$, $2x - y + 3 = 0$ and $x + ay - 3 = 0$ are concurrent?

- ☐ -2
- ☐ 2
- ☐ -4
- ☐ 4

68 of 100

228 PU_2016_M.Tech_310_Computational Biology_M

Which of the following is common to both *E.coli* and eukaryotic chromosomes?

- ☐ DNA is contained in the nucleus
- ☐ DNA is packaged into nucleosomes
- ☐ DNA is negatively supercoiled
- ☐ DNA is circular

69 of 100

231 PU_2016_M.Tech_310_Computational Biology_M

Microsatellites are used more commonly than minisatellites as DNA markers because:-

- ☐ minisatellites are present in too many location within the genomes
- ☐ restriction enzymes can be used to type microsatellites but not minisatellites
- ☐ there are very few microsatellites in eukaryotic genomes so they are easily identified and analyzed

- ☐ microsatellites are present throughout eukaryotic genomes and are easily amplified using PCR

70 of 100

233 PU_2016_M.Tech_310_Computational Biology_M

The Z- DNA helix:-

- ☐ is the most common conformation of DNA
- ☐ tends to be found at the 3'end of genes
- ☐ is favoured by an alternating GC sequence
- ☐ has fewer base pair per turn than the B-DNA

71 of 100

223 PU_2016_M.Tech_310_Computational Biology_M

Melting of DNA results in:-

- ☐ decrease in optical density
- ☐ no change in optical density
- ☐ increase in optical density
- ☐ none

72 of 100

244 PU_2016_M.Tech_310_Computational Biology_M

If the ratio $(A+G)/(T+C)$ in one strand of DNA is 0.7, what will be the ratio of $(A+G)/(T+C)$ in the complementary strand?

- ☐ 0.7
- ☐ 0.35
- ☐ 1.43
- ☐ 0.25

73 of 100

225 PU_2016_M.Tech_310_Computational Biology_M

Sugar- phosphate backbone is:-

- ☐ hydrophilic in nature
- ☐ hydrophobic in nature
- ☐ none covalent in nature
- ☐ none

74 of 100

242 PU_2016_M.Tech_310_Computational Biology_M

Which of the following reagents and conditions will denature ds DNA?

- ☐ urea
- ☐ heat

- ☐ heat, urea and extreme pH
- ☐ extreme pH

75 of 100

245 PU_2016_M.Tech_310_Computational Biology_M

Which of the following is a *false* statement about myosin?

- ☐ it is involved in muscle contraction
- ☐ it does not act as a molecular motor
- ☐ it has a long alpha-helical tail through which it forms homodimers
- ☐ it links the actin bundles to the plasma membrane in the microvilli of intestinal cells

76 of 100

220 PU_2016_M.Tech_310_Computational Biology_M

Protein fluorescence arises primarily from which residue?

- ☐ Phenylalanine
- ☐ Arginine
- ☐ Tryptophan
- ☐ Tyrosine

77 of 100

224 PU_2016_M.Tech_310_Computational Biology_M

Eukaryotes differ from prokaryotes in DNA replication:-

- ☐ discontinuous rather than semi-discontinuous replication
- ☐ unidirectional rather than bidirectional replication
- ☐ use of DNA primer instead of RNA primer
- ☐ different enzymes for leading and lagging strands

78 of 100

254 PU_2016_M.Tech_310_Computational Biology_M

Two circles of radii 5 cm and 3 cm intersect at two points and the distance between their centres is 4 cm.

What will be the length of the common chord?

- ☐ 12
- ☐ 6
- ☐ 8
- ☐ 3

79 of 100

250 PU_2016_M.Tech_310_Computational Biology_M

The family of straight lines passing through the origin is represented by the differential equation:-

- ☐ $ydy - xdx = 0$

- ☐ $x dy - y dx = 0$
- ☐ $x dx + y dy = 0$
- ☐ $x dy + y dx = 0$

80 of 100

259 PU_2016_M.Tech_310_Computational Biology_M

Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?

- ☐ 9/20
- ☐ 2/5
- ☐ 1/2
- ☐ 8/15

81 of 100

288 PU_2016_M.Tech_310_Computational Biology_D

A computer program that converts assembly language to machine language is:-

- ☐ Compiler
- ☐ Assembler
- ☐ Interpreter
- ☐ Comparator

82 of 100

269 PU_2016_M.Tech_310_Computational Biology_D

A rectangular reservoir is 120 m long and 75 m wide. At what speed per hour water should flow into it through a square pipe of 20 cm wide so that the water rises 2.4 m in 18 hours?

- ☐ 12 km/hr
- ☐ 16 km/hr
- ☐ 30 km/hr
- ☐ 36 km/hr

83 of 100

273 PU_2016_M.Tech_310_Computational Biology_D

Choanocytes are present in:-

- ☐ Ctenophora
- ☐ Cnidaria
- ☐ Arthropoda
- ☐ Porifera

84 of 100

284 PU_2016_M.Tech_310_Computational Biology_D

When a cell is infected by virus, it releases antimicrobial proteins known as:-

- ☐ Cytokines
- ☐ Interleukins
- ☐ Interferons
- ☐ Pheromones

85 of 100

277 PU_2016_M.Tech_310_Computational Biology_D

Coelom is a body cavity lined by:-

- ☐ Endoderm
- ☐ Echinoderm
- ☐ Ectoderm
- ☐ Mesoderm

86 of 100

261 PU_2016_M.Tech_310_Computational Biology_D

When rectangles are drawn with the areas proportional to the frequencies of respective class intervals, what is the diagram called?

- ☐ Histogram
- ☐ Bar graph
- ☐ Pie graph
- ☐ Frequency polygon

87 of 100

268 PU_2016_M.Tech_310_Computational Biology_D

There are one brown and seven white eggs in an egg box. John decides to make a two-egg omelette. He takes out each egg from the box without looking at its colour. What is the probability that John gets an omelette made from two brown eggs?

- ☐ $\frac{3}{4}$
- ☐ $\frac{1}{4}$
- ☐ $\frac{1}{8}$
- ☐ 0

88 of 100

272 PU_2016_M.Tech_310_Computational Biology_D

If the mean of x , y and z is 'a'. If $xy + yz + zx = 0$, what is the mean of x^2 , y^2 and z^2 ?

- ☐ $3a^2$
- ☐ $a^2/3$
- ☐ $9a^2$
- ☐ a^2

89 of 100

285 PU_2016_M.Tech_310_Computational Biology_D
ASCII stands for:-

- ☐ All purpose Scientific Code for Information Interchange
- ☐ American Standard Code for Information Interchange
- ☐ American Security Code for Information Interchange
- ☐ American Scientific Code for Information Interchange

90 of 100

280 PU_2016_M.Tech_310_Computational Biology_D
The aquatic sister group of modern land vertebrate is:-

- ☐ Ray finned fish
- ☐ Dipnoans
- ☐ Lobed finned fish
- ☐ *Amphioxus*

91 of 100

297 PU_2016_M.Tech_310_Computational Biology_D
'MOV' extension refers usually to what kind of file?

- ☐ Audio file
- ☐ Image file
- ☐ MS Office document
- ☐ Animation/movie file

92 of 100

260 PU_2016_M.Tech_310_Computational Biology_D
Three ships p, q and r sail from England to India. Odds in favour of their arrival safety are 2:5, 3:7 and 6:11 respectively. Find the probability that they all arrive safely.

- ☐ 0.01
- ☐ 0.04
- ☐ 0.02
- ☐ 0.03

93 of 100

296 PU_2016_M.Tech_310_Computational Biology_D
What is part of a database that holds only one type of information?

- ☐ Record
- ☐ Field
- ☐ Report
- ☐ File

94 of 100

276 PU_2016_M.Tech_310_Computational Biology_D

Retrogressive metamorphosis is observed in:-

- ☐ *Amphioxus*
- ☐ Hagfish
- ☐ Ascidia
- ☐ *Balanoglossus*

95 of 100

292 PU_2016_M.Tech_310_Computational Biology_D

What do we call a collection of two or more computers that are located within a limited distance of each other and that are connected to each other directly or indirectly?

- ☐ Wide Area Network
- ☐ Inernet
- ☐ Interanet
- ☐ Local Area Network

96 of 100

293 PU_2016_M.Tech_310_Computational Biology_D

.INI' extension refers usually to what kind of file?

- ☐ System file
- ☐ Image file
- ☐ Image Color Matching Profile file
- ☐ Hypertext related file

97 of 100

289 PU_2016_M.Tech_310_Computational Biology_D

Which of the following computer language is used for artificial intelligence?

- ☐ C
- ☐ FORTRAN
- ☐ PROLOG
- ☐ COBOL

98 of 100

264 PU_2016_M.Tech_310_Computational Biology_D

If p and q are whole numbers such that $p^q = 121$, the value of $(p - 1)^q + 1$ is:-

- ☐ 1
- ☐ 100
- ☐ 121

☐ 1000

99 of 100

265 PU_2016_M.Tech_310_Computational Biology_D

If $\sin A = \cos A$ and A is an acute angle, then $\tan A - \cot A$ is equal to:-

☐ 0

☐ $\frac{1}{2}$

☐ 1

☐ 2

100 of 100

281 PU_2016_M.Tech_310_Computational Biology_D

Neoteny is present in:-

☐ Turtle

☐ Axolotl larva

☐ Toad

☐ Frog

Section 1 - Section 1

Question No.1

4.00

Bookmark ☐

The probability that a teacher will give an unannounced test during any class meeting is $1/5$. If a student is absent twice, then what is the probability that the student will miss at least one test?

- ☐ $7/25$
- ☐ $4/5$
- ☐ $2/5$
- ☐ $9/25$

Question No.2

4.00

Bookmark ☐

Which of the following are the constituents of ideal gas equation?

- (i) Pressure
 - (ii) Temperature
 - (iii) Volume
 - (iv) ratio of specific heats
 - (v) number of moles of gas molecules
- ☐ (i), (ii), (iii), (iv) and (v)
 - ☐ (i), (ii) and (iii)
 - ☐ (i) and (ii) and (v)
 - ☐ (i), (ii), (iii) and (v)

Question No.3

4.00

Bookmark ☐

For a simple enzymatic reaction, what is the value of the initial velocity when $(S) = 2K_m$?

- ☐ $2V_{max}$
- ☐ $\frac{1}{2} V_{max}$
- ☐ $\frac{2}{3} V_{max}$
- ☐ V_{max}

Question No.4

4.00

Bookmark ☐

Firewalls are used to protect a communication network system against

- ☐ Data-driven attacks
- ☐ Unauthorized attacks
- ☐ Virus attacks
- ☐ Fire-attacks

Question No.5

4.00

Bookmark ☐

Due to _____, the subways were closed all morning.

- ☐ flood
- ☐ are flooded
- ☐ floods
- ☐ its flooding

Question No.6

4.00

Bookmark ☐

A die is thrown 7 times, what is the chance that an odd number turns up at least 4 times?

- ☐ $1/3$
- ☐ $1/7$
- ☐ $1/4$
- ☐ $1/2$

Question No.7

4.00

Bookmark ☐

Organelle found in plant seeds that oxidise stored lipids as source of carbon and energy for growth are

- ☐ lysosomes
- ☐ chloroplasts

- ☐ glyoxysomes
- ☐ peroxisomes

Question No.8

4.00

Bookmark ☐

Based on the information given, answer the below question.

1. A,B,C,D,E and F are travelling in a bus.
2. There are two reporters, two mechanics, one photographer and one writer in the group.
3. Photographer A is married to D who is a reporter.
4. The writer is married to B who is of the same profession as that of F.
5. A,B,C,D are two married couples and no one in this belong to the same profession.
6. F is the brother of C.

Which of the following is the pair of reporters?

- ☐ AE
- ☐ DF
- ☐ Cannot be determined
- ☐ DE

Question No.9

4.00

Bookmark ☐

X is twice as good a workman as Y and together they finish a piece of work in 18 days. In how many days will X alone finish the work?

- ☐ 25
- ☐ 26
- ☐ 28
- ☐ 27

Question No.10

4.00

Bookmark ☐

The minimum number of temporary variables needed to swap the contents of two variables is

- ☐ 0
- ☐ 3
- ☐ 1
- ☐ 2

Question No.11

4.00

Bookmark ☐

An example of a co-dominant marker is

- ☐ AFLP marker
- ☐ RAPD marker
- ☐ SSR marker
- ☐ ISSR marker

Question No.12

4.00

Bookmark ☐

Match the items from Group A to Group B and choose the right option given below.

Group A

- (i) zeroth law of thermodynamics
- (ii) first law of thermodynamics
- (iii) second law of thermodynamics

Group B

- (1) conservation of mass
- (2) thermal equilibrium
- (3) conservation of energy
- (4) entropy

- ☐ (i) – (1); (ii) – (2); (iii) – (3)
- ☐ (i) – (3); (ii) – (1); (iii) – (4)
- ☐ (i) – (4); (ii) – (3); (iii) – (2)
- ☐ (i) – (2); (ii) – (3); (iii) – (4)

Question No.13

4.00

Bookmark ☐

Genes that are located at identical loci of homologous chromosomes are called

- ☐ pseudogenes
- ☐ alleles
- ☐ polygenes
- ☐ homozygous

Question No.14

4.00

Bookmark ☐

If $X = \begin{bmatrix} a & 0 \\ 1 & 1 \end{bmatrix}$ and $Y = \begin{bmatrix} 1 & 0 \\ 5 & 1 \end{bmatrix}$ then what is the value of 'a' for which $X^2 = Y$?

- ☐ 4
- ☐ -1
- ☐ no real values
- ☐ 1

Question No.15

4.00

Bookmark ☐

The acetyl group required for Cytoplasmic fatty acid biosynthesis generated due to activity of

- ☐ citrate synthase
- ☐ isocitrate dehydrogenase
- ☐ isocitratelase
- ☐ citrate lyase

Question No.16

4.00

Bookmark ☐

What is the value of $\int_0^{2\pi} \sin^{100} x \cos^{99} x dx$?

- ☐ 0
- ☐ 1
- ☐ 10
- ☐ 9

Question No.17

4.00

Bookmark ☐

C was primarily developed as a

- ☐ systems programming language
- ☐ data processing language
- ☐ general purpose language
- ☐ simulation language

Question No.18

4.00

Bookmark ☐

Integer division results in

- ☐ overflow
- ☐ truncation
- ☐ rounding
- ☐ modulation

Question No.19

4.00

Bookmark ☐

Which one of the following can serve as precursor of NAD⁺ in humans

- ☐ Tryptophan
- ☐ Panthothenate

- ☐ Riboflavin
- ☐ Tyrosine

Question No.20

4.00

Bookmark ☐

A function $f: \mathbb{R} \rightarrow \mathbb{R}$ satisfies $\sin x \cos y (f(2x+2y) - f(2x-2y)) = \cos x \sin y (f(2x+2y) - f(2x-2y))$. If $f'(0) = 1/2$ then which of the statement is true?

- ☐ $f''(x) = f(x) = 0$
- ☐ $4f''(x) - f(x) = 0$
- ☐ $f''(x) + f(x) = 0$
- ☐ $4f''(x) + f(x) = 0$

Question No.21

4.00

Bookmark ☐

Which amino acid side chain forms the Schiff's base with the substrate in the aldolase reaction?

- ☐ Ser
- ☐ Lys
- ☐ Tyr
- ☐ Arg

Question No.22

4.00

Bookmark ☐

As a country, the United States is _____ that there are five time zones.

- ☐ too big
- ☐ very big
- ☐ much big
- ☐ so big

Question No.23

4.00

Bookmark ☐

What is the integrating factor of differential equation $\cos x \frac{dy}{dx} + y \sin x = 1$?

- ☐ $\sin x$
- ☐ $\tan x$
- ☐ $\sec x$
- ☐ $\cos x$

Question No.24

4.00

Bookmark ☐

Choose the best antonym of the italicized word.

The task assigned to him was *arduous*.

- ☐ good
- ☐ absorbing
- ☐ plain
- ☐ easy

Question No.25

4.00

Bookmark ☐

Let A, B, C be three mutually independent events. Consider the two statements S_1 and S_2

S_1 : A and BUC are independent

S_2 : A and BNC are independent

Then

- ☐ only S_1 is true
- ☐ only S_2 is true
- ☐ both S_1 and S_2 are true
- ☐ neither S_1 nor S_2 is true

Question No.26

4.00

Bookmark ☐

If two angles of a triangle are $\tan^{-1}(2)$ and $\tan^{-1}(3)$ then what is the value of the third angle?

- ☐ $\frac{\pi}{4}$
- ☐ $\frac{\pi}{2}$
- ☐ $\frac{3\pi}{4}$
- ☐ π

Question No.27

4.00

Bookmark ☐

Which of the following will be observed in an interaction between two dipoles?

- ☐ r^6
- ☐ r^2
- ☐ $1/r^6$
- ☐ $1/r^2$

Question No.28

4.00

Bookmark ☐

The mother gripped her child's arm _____ he be trampled.

- ☐ lest
- ☐ if not
- ☐ if
- ☐ unless

Question No.29

4.00

Bookmark ☐

In the following question, the first two words (given in italics) have a definite relationship. Choose one word out of the given four alternatives which will fill the blank space and show the same relationship with the third word as between the first two.

Truthfulness is to *Liar* as *Loyalty* is to?.....

- ☐ Devotion
- ☐ Traitor
- ☐ Falsehood
- ☐ Worker

Question No.30

4.00

Bookmark ☐

Which of the following class of statements usually produce no object code when compiled?

- ☐ Declaration
- ☐ Unreachable
- ☐ Assignment
- ☐ Cont

Question No.31

4.00

Bookmark ☐

Which of the following is a service not supported by the operating system?

- ☐ Compilation
- ☐ Accounting
- ☐ I/O operation
- ☐ Protection

Question No.32

4.00

Bookmark ☐

If $|a| + |b| = |c|$ and $a + b = c$ then the angle between a and b is

- ☐ $\theta = \pi$
- ☐ $\theta = 2\pi$
- ☐ $\theta = \pi/3$
- ☐ $\theta = 0^\circ$

Question No.33

4.00

Bookmark ☐

Which of the following operators takes only integer operands?

- ☐ /
- ☐ *
- ☐ %
- ☐ +

Question No.34

4.00

Bookmark ☐

Bristle : Brush

- ☐ Arm : Leg
- ☐ Stage: Chairs
- ☐ Art: Sculpture
- ☐ Key: Piano

Question No.35

4.00

Bookmark ☐

A father has 3 children with at least one boy. What is probability that he has 2 boys and 1 girl ?

- ☐ 1/2
- ☐ 1/4
- ☐ 2/3
- ☐ 1/3

Question No.36

4.00

Bookmark ☐

If \vec{a} , \vec{b} and \vec{c} are unit vectors such that $\vec{a} + \vec{b} + \vec{c} = \vec{0}$, then what is the value of $\vec{a} \cdot \vec{b} + \vec{b} \cdot \vec{c} + \vec{c} \cdot \vec{a}$?

- ☐ 1/3
- ☐ 1/2
- ☐ -3/2
- ☐ -1/2

Question No.37

4.00

Bookmark ☐

If a hollow sphere filled with water loses its water at a constant rate, the center of mass of the sphere

- ☐ moves downward first and then upward
- ☐ exhibits a monotonous upward motion
- ☐ exhibits a monotonous downward motion
- ☐ remains stationary

Question No.38

4.00

Bookmark ☐

In which model of database data is stored in tables:

- ☐ Network model
- ☐ Relational model

- ☐ Recreational model
- ☐ Hierarchical model

Question No.39

4.00

Bookmark ☐

Which of the following is/are true in respect of DeBroglie's hypothesis?

- (i) electron can behave like a wave
- (ii) wavelength of electrons depend on their velocities
- (iii) wavelength of electrons will not depend on their velocities
- ☐ (i) and (ii)
- ☐ (i) and (iii)
- ☐ (i), (ii) and (iii)
- ☐ (ii) and (iii)

Question No.40

4.00

Bookmark ☐

If $x = \int_0^y \frac{dt}{\sqrt{1+9t^2}}$ and $\frac{d^2y}{dx^2} = ay$ then what is the value of a ?

- ☐ 9
- ☐ 0
- ☐ 10
- ☐ 1

Question No.41

4.00

Bookmark ☐

If the cell membrane has an ion channel that is equally selective to all ions, this channel will?

- ☐ change the resting potential of the neuron
- ☐ decrease the resistance of the neuron
- ☐ make the cell more excitable
- ☐ have no effect on the neuron

Question No.42

4.00

Bookmark ☐

Random priming technique for preparing DNA probes involves the labeling of 6 mer oligonucleotides. What is the number of possible random combinations when all the four nucleotides are used in the reaction ?

- ☐ 2096
- ☐ 1024
- ☐ 4000
- ☐ 6000

Question No.43

4.00

Bookmark ☐

For a particle undergoing a uniform circular motion with radius r and velocity v, the acceleration is given by

- ☐ mv/r
- ☐ v^2/r
- ☐ mv^2/r
- ☐ v/r

Question No.44

4.00

Bookmark ☐

Which of the following represents mammalian mitotic Cyclins

- ☐ Cyclins A and B
- ☐ Cyclins A and D
- ☐ Cyclins B and D
- ☐ Cyclins E and B

Question No.45

4.00

Bookmark ☐

The number of genotypes in Mendelian dihybrid cross is:

- ☐ 3
- ☐ 16
- ☐ 12
- ☐ 9

Question No.46

4.00

Bookmark ☐

Identify the adverb in the following sentence:

We looked upwards and saw a bright shooting star

- ☐ shooting
- ☐ upwards
- ☐ bright
- ☐ looked

Question No.47

4.00

Bookmark ☐

Which of the following is not a command delimiter?

- ☐ &
- ☐ ;
- ☐ new line
- ☐ ,

Question No.48

4.00

Bookmark ☐

If the atmospheric pressure suddenly drops to 0.5 bar, which of the following is likely to be right ?

- ☐ Trees will find it more difficult to send water to the top
- ☐ Animals will find it easier to breathe
- ☐ Aquatic plants will grow better due to increased dissolved oxygen
- ☐ Trees will find it easier to send water from the root to the top

Question No.49

4.00

Bookmark ☐

If a random variable X assumes the values 0 and 1 with $P(X=0) = 3P(X=1)$, then variance of X is

- ☐ 2/16
- ☐ 3/16
- ☐ 1/16
- ☐ 4/16

Question No.50

4.00

Bookmark ☐

The process of accessing data stored in a tape is similar to manipulating data on a

- ☐ heap
- ☐ queue
- ☐ stack
- ☐ list

Question No.51

4.00

Bookmark ☐

Removal of gene activity A from a linear pathway results in higher than normal levels of transcripts from gene B. A reasonable hypothesis would be that

- ☐ Gene B must act upstream of Gene A
- ☐ Gene B acts downstream of Gene A and is regulated by A directly or indirectly
- ☐ The increase in transcript B abundance is an experimental error
- ☐ Gene A has no relation to transcripts of Gene B

Question No.52

4.00

Bookmark ☐

If Milk is water, water is sugar, sugar is road, road is sky and sky is track where do aeroplanes fly?

- ☐ Milk
- ☐ Road
- ☐ Sugar
- ☐ Sky

Question No.53

4.00

Bookmark ☐

The basic unit of chromatin nucleosome consists of

- ☐ H1 H2B, H3, H4 histones and 200 bp of DNA
- ☐ H1, H2, H3, H4 histones and 180 bp of DNA
- ☐ H2A, H2B, H3, H4 histones and 140 bp of DNA
- ☐ DNA polymerase, DNA helicase and histones

Question No.54

4.00

Bookmark ☐

The normal rate of infection of a certain disease in animals is known to be 40%. In an experiment with 6 animals injected with a new vaccine it was observed that none of the animals caught infection. What is the probability of the observed result?

- ☐ 0.0467
- ☐ 0.001
- ☐ 0.0041
- ☐ 0.467

Question No.55

4.00

Bookmark ☐

These poultry belong to Mr. Kishen, our new neighbor
The underlined word is a _____ noun.

- ☐ abstract
- ☐ common
- ☐ collective
- ☐ proper

Question No.56

4.00

Bookmark ☐

A recombinant vaccine is available for which one of the following cancers?

- ☐ Adult T cell leukemia
- ☐ Colon carcinoma
- ☐ Cervical carcinoma
- ☐ Glioblastoma

Question No.57

4.00

Bookmark ☐

There are n locks and n matching keys. If all the locks and keys are to be perfectly matched, then what is the maximum number of trials required to open a lock?

- ☐ $\frac{n(n-1)}{2}$
- ☐ $\frac{n}{2}$
- ☐ $\frac{(n+1)}{2}$
- ☐ $\frac{n(n+1)}{2}$

Question No.58

4.00

Bookmark ☐

Major gluconeogenesis occurs in

- ☐ Liver and skeletal muscle
- ☐ Liver and adrenal gland
- ☐ Liver and heart
- ☐ Liver and kidney

Question No.59

4.00

Bookmark ☐

How many microliters of 0.1 M solution of sodium chloride will make 10 ml of 5 mM sodium chloride ?

- ☐ 10
- ☐ 100
- ☐ 200
- ☐ 500

Question No.60

4.00

Bookmark ☐

Study the following information carefully and answer the question below it

The Director of an MBA college has decided that six guest lectures on the topics of Motivation, Decision Making, Quality Circle, Assessment Centre, Leadership and Group Discussion are to be organised on each day from Monday to Sunday.

- (i) One day there will be no lecture (Saturday is not that day), just before that day Group Discussion will be organised.
- (ii) Motivation should be organised immediately after Assessment Centre.
- (iii) Quality Circle should be organised on Wednesday and should not be followed by Group Discussion
- (iv) Decision Making should be organised on Friday and there should be a gap of two days between Leadership and Group Discussion

Which of the pairs of lectures were organised on first and last day?

- ☐ Quality Circle and Motivation
- ☐ Group Discussion and Quality Circle
- ☐ Group Discussion and Decision Making
- ☐ None of these

Question No.61

4.00

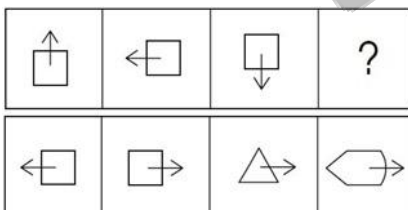
Bookmark ☐

Anand is heavier than Gopal. Mohan is lighter than Jagan. Pandian is heavier than Jagan but lighter than Gopal. Who is the heaviest of all ?

- ☐ Anand
- ☐ Pandian
- ☐ Jagan
- ☐ Gopal

Question No.62

4.00

Bookmark ☐

- (A)
- ☐ D
- ☐ C
- ☐ A
- ☐ B

Question No.63

4.00

Bookmark ☐

The following plant hormone is synthesized from an amino acid precursor

- ☐ Auxin
- ☐ Cytokinin
- ☐ Abscissic acid
- ☐ Ethylene

Question No.64

4.00

Bookmark ☐

Constructor is called whenever

- ☐ an object is declared
- ☐ a class is used
- ☐ a class is declared
- ☐ an object is used

Question No.65

4.00

Bookmark ☐

If all the 4 bases have equal probability of occurrence in a genome, approximately how many times will EcoRI cut in this genome if the size of the circular DNA is 1 Mbp?

- ☐ 244
- ☐ 6000
- ☐ 1000
- ☐ 10 power 6

Question No.66

4.00

Bookmark ☐

Choose the best synonym of the italicized word.

Reena has an *insatiable* love for music.

- ☐ undesirable
- ☐ unchanging
- ☐ irreconcilable
- ☐ unquenchable

Question No.67

4.00

Bookmark ☐

Assertion: Crude oil is abundantly found in nature

Reason: It is the main raw material for all automobiles

- ☐ Both A and R are true and R is not the correct explanation of A
- ☐ Both A and R are true and R is the correct explanation of A
- ☐ A is true but R is false
- ☐ A is false but R is true

Question No.68

4.00

Bookmark ☐

Which is the weakest interaction?

- ☐ A covalent bond between the O and H atoms of water
- ☐ A hydrogen bond between two water molecules
- ☐ A van der Waals interaction between two methyl groups
- ☐ An ionic interaction between a carboxylic acid and an amine

Question No.69

4.00

Bookmark ☐

What is the solution of the differential equation $(x+2y^3)\frac{dy}{dx} = y$?

- ☐ $\frac{y}{x} = x^2 + c$
- ☐ $\frac{x^2}{y} = y^2 + c$
- ☐ $\frac{x}{y} = y^2 + c$
- ☐ $\frac{x}{y^2} = y + c$

Question No.70

4.00

Bookmark ☐

Which of the following abstract data types can be used to represent a many to many relation?

- ☐ Linked list

- ☐ Linked list
- ☐ Tree
- ☐ Graph
- ☐ Queue

Question No.71

4.00

Bookmark ☐

The immunoglobulin fold is made up of

- ☐ a sandwich of two antiparallel beta sheets
- ☐ a beta barrel
- ☐ seven alpha helical segments
- ☐ a sandwich of two parallel beta sheets

Question No.72

4.00

Bookmark ☐

The effect of natural selection may be countered by

- ☐ gene flow
- ☐ mutation
- ☐ genetic drift
- ☐ inbreeding

Question No.73

4.00

Bookmark ☐

For a group containing 100 observations, the mean and the standard deviation are 8 and $\sqrt{10.5}$, respectively. For 50 observations selected from these 100 observations, the mean and standard deviation are 10 and 2, respectively. The values of the mean and standard deviation for the other half are

- ☐ 3,9
- ☐ 5,10
- ☐ 2,4
- ☐ 6,3

Question No.74

4.00

Bookmark ☐

Rutherford's atomic theory basically formulated after an experiment with

- ☐ α particles
- ☐ γ rays
- ☐ X-rays
- ☐ β particles

Question No.75

4.00

Bookmark ☐

Which of the following represent Heisengberg's uncertainty principle?

- (i) $\Delta x \Delta p \geq \hbar/2$
- (ii) $\Delta E \Delta t \geq \hbar/2$
- (iii) $\Delta x \Delta p \leq \hbar/2$
- (iv) $\Delta E \Delta t \leq \hbar/2$
- ☐ (i) and (ii)
- ☐ (iii) and (iv)
- ☐ (ii) and (iii)
- ☐ (i) and (iv)

Question No.76

4.00

Bookmark ☐

Which of the following shell script's does not recognize the break command?

- ☐ goto
- ☐ while
- ☐ for
- ☐ until

Question No.77

4.00

Bookmark ☐

What is the protein found in human hair and finger nails, as well as horns, wool, claws, bird beaks and spider webs?

- ☐ Glycogen
- ☐ Keratin
- ☐ Collagen
- ☐ Cellulite

Question No.78

4.00

Bookmark ☐

Arrange the following in the increasing order of their frequencies

(i) ultra violet (ii) infra red (iii) x-rays (iv) radio frequency

- ☐ (iv), (iii), (ii), and (i)
- ☐ (iv), (ii), (i), and (iii)
- ☐ (i), (ii), (iii), and (iv)
- ☐ (iii), (i), (ii), and (iv)

Question No.79

4.00

Bookmark ☐

Which one of the following techniques will be the most appropriate to separate dCTP from a mixture of dCTP, dCDP, dCMP ?

- ☐ Hydrophobic interaction chromatography
- ☐ Cation exchange chromatography
- ☐ Anion exchange chromatography
- ☐ Gel filtration chromatography

Question No.80

4.00

Bookmark ☐

Which of the following is not a character special file?

- ☐ Terminal
- ☐ Tape Drive
- ☐ Modem
- ☐ Printer

Question No.81

4.00

Bookmark ☐

Void can be used

- ☐ outside the brackets of a function that represent the function returns value
- ☐ in an expression
- ☐ b. in an comment line statement
- ☐ a datatype of a function that returns nothing to its calling environment

Question No.82

4.00

Bookmark ☐

cout stands for

- ☐ class output
- ☐ common output
- ☐ call output
- ☐ character output

Question No.83

4.00

Bookmark ☐

Which of the following diffraction helps us to solve the structures of macromolecules?

- ☐ UV rays
- ☐ radio frequency rays.
- ☐ Infrared rays
- ☐ X-rays

Question No.84

4.00

Bookmark ☐

The resolution of a diffraction grating is independent of

- ☐ intensity of incident light
- ☐ number of grating lines
- ☐ wavelength of incident light
- ☐ order of the diffraction

Question No.85

4.00

Bookmark ☐

The maximum number of dimension an array can have in C is

- ☐ 3
- ☐ 5
- ☐ 4
- ☐ compiler dependent

Question No.86

4.00

Bookmark ☐

Statement (S): The gun recoils in the opposite direction of its firing.

Reason1 (R1): For every action there is an equal and opposite reaction.

Reason2 (R2): Mass can neither be created nor destroyed.

- ☐ Only S and R2 are true; R2 is the right reason for S.
- ☐ S, R1 and R2 are true; R1 is the right reason of S.
- ☐ S, R1, and R2 are true; R2 is the right reason of S.
- ☐ S, R1, and R2 are true; both R1 and R2 are reasons for S.

Question No.87

4.00

Bookmark ☐

The following program fragment

for (i = 1; i < 5; ++i)

if(i == 3) continue; printf("%d", i); results in the printing of

- ☐ 1,2,3,4
- ☐ 1,2,4
- ☐ 2,4,5
- ☐ 1,2,4,5

Question No.88

4.00

Bookmark ☐Between any two real roots of the equation $e^x \sin x - 1 = 0$, the equation $e^x \cos x + 1 = 0$ has

- ☐ no root
- ☐ at least one root
- ☐ at most one root
- ☐ exactly one root

Question No.89

4.00

Bookmark ☐

Why are rifamycins especially useful for studying transcription?

- ☐ Because they are high affinity for DNA - DNA hybrid

- ☐ Because they such high affinity for RNA- DNA hybrids
- ☐ Because they such high affinity for single stranded RNA
- ☐ Because they block RNA chain elongation, but do not inhibit RNA polymerase binding to the promoter nor formation of the initial phosphodiester bond
- ☐ Because they such high affinity for duplex DNA

Question No.90

4.00

Bookmark ☐

Study the following information carefully and answer the question below it:

Aasha, Bhuvnesh, Charan, Danesh, Ekta, Farhan, Ganesh and Himesh are sitting around a circle, facing the centre. Aasha sits fourth to the right of Himesh while second to the left of Farhan. Charan is not the neighbour of Farhan and Bhuvnesh. Danesh sits third to the right of Charan. Himesh never sits next to Ganesh.

Who is to the immediate left of Aasha?

- ☐ Bhuvnesh
- ☐ Aasha
- ☐ Ganesh
- ☐ Charan

Question No.91

4.00

Bookmark ☐

Which of the following language is case sensitive?

- ☐ BASIC
- ☐ VB
- ☐ C
- ☐ COBOL

Question No.92

4.00

Bookmark ☐

The dominant force between a proton and an electron is

- ☐ Centripetal force
- ☐ Gravitational force
- ☐ moment of inertia
- ☐ Colombian force

Question No.93

4.00

Bookmark ☐

Assume that each born child is equally likely to be a boy or a girl. If a family has two children, what is the conditional probability that both are girls given that the youngest is a girl?

- ☐ 1/4
- ☐ 1/3
- ☐ 1/2
- ☐ 1/8

Question No.94

4.00

Bookmark ☐

Choose the missing term: SHG, RIF, QJE, PKD, ?

- ☐ OLD
- ☐ MLB
- ☐ NMD
- ☐ OLC

Question No.95

4.00

Bookmark ☐

Which data structure is called as FIFO

- ☐ Heap
- ☐ Queue
- ☐ Stack
- ☐ Graph

Question No.96

4.00

Bookmark ☐

In an isothermal process, which of the following remains constant?

- ☐ temperature
- ☐ pressure
- ☐ volume
- ☐ enthalpy

Question No.97

4.00

Bookmark ☐

If the system of equations $x - ky - z = 0$, $kx - y - z = 0$, $x + y - z = 0$ has a non zero solution, then what are the possible values of k ?

- ☐ -1,2
- ☐ 1,2
- ☐ 0,1
- ☐ -1,1

Question No.98

4.00

Bookmark ☐

Study the following information carefully and answer the question below it

- (i) There is a group of five persons- A, B, C, D and E
- (ii) One of them is manual scavenger, one is sweeper, one is watchman, one is human scarecrow and one is grave-digger
- (iii) Three of them – A, C and grave-digger prefer tea to coffee and two of them – B and the watchman prefer coffee to tea
- (iv) The human scarecrow and D and A are friends to one another but two of these prefer coffee to tea.
- (v) The manual scavenger is C's brother

Which of the above statements is unnecessary?

- ☐ (iii)
- ☐ (ii)
- ☐ Null
- ☐ (iv)

Question No.99

4.00

Bookmark ☐

The electric field at the centre of a hollow conducting sphere of radius r is

- ☐ independent of r
- ☐ inversely proportional to r^2
- ☐ directly proportional to r^2
- ☐ directly proportional to r

Question No.100

4.00

Bookmark ☐

Correct the error in the italicized part of the sentence by choosing the most appropriate option.

Whenever the two sisters *go out for shopping*, they take their pet dog with them.

- ☐ go out to shopping
- ☐ go out shopping
- ☐ go out on shopping
- ☐ go out of shopping

Sr No.	MTech Computational Biology
1	Which term will replace the question mark in the series: ABD,DGK,HMS,MTB,SBL, ?
Alt1	ZKU
Alt2	ZKW
Alt3	ZAB
Alt4	XKW

2	Choose word from the given options which bears the same relationship to the third word, as the first two bears: Illiteracy: Education:: Flood:?
Alt1	Rain
Alt2	Bridge
Alt3	Dam
Alt4	River

3	Select the lettered pair that has the same relationship as the original pair of words: Sip : Gulp
Alt1	Touch: Push
Alt2	Cup: Class
Alt3	Tent: Hut
Alt4	Soup: Water

4	Select the lettered pair that has the same relationship as the original pair of words: Low : Cattle
Alt1	Sheep: Beef
Alt2	Gaggle: Chicken
Alt3	Grunt: Hogs
Alt4	Flock: Goat

5	Find out the number that has the same relationship as the numbers of the given pair: 8 : 81 :: 64 : ?
Alt1	125
Alt2	137
Alt3	525
Alt4	625

6	Spot the defective segment from the following:
Alt1	It's time
Alt2	the students dispersed
Alt3	to go to home
Alt4	after study hours

7	There is no ----- in our car and it is already crowded.
Alt1	room
Alt2	place
Alt3	seat

Alt4	space
------	-------

8	Newton ----- loved his pet dog very much.
Alt1	a scientist
Alt2	the scientist
Alt3	scientist
Alt4	one scientist

9	Choose the option closest in meaning to the given word: JINGOISM
Alt1	deism
Alt2	chauvinism
Alt3	extremism
Alt4	pacifism

10	Choose the antonymous option you consider the best: QUACK
Alt1	bizarre
Alt2	procurer
Alt3	charlatan
Alt4	authority

11	In a village there are 1000 persons. Out of which 800 are literates. Out of 1000,700 are criminals. There are 550 literate criminals in that village. How many Illiterate non criminals are there?
Alt1	150
Alt2	250
Alt3	50
Alt4	200

12	Average weight of A,B,C is 45; Average weight of A&B is 40; Average weight of B&c is 43, Weight of B is
Alt1	17
Alt2	20
Alt3	26
Alt4	31

13	Which of the following cannot be the Median of the three positive Integers X,Y & Z ?
Alt1	X
Alt2	Z
Alt3	X+Z
Alt4	$(X+Z)/3$

14	How many Zero's are there in the product $1*2*3*.....*10$
Alt1	2
Alt2	10
Alt3	5

Alt4	6
------	---

15	A,B,C,D work on a project. Together A,B & C can complete in 100 days; Together B,C & D can complete in 101 days; Together C,D & A can complete in 102 days; together D,A & B can complete in 103 days . Rank them from the best to the worst performer.
Alt1	C>B>A>D
Alt2	C>A>B>D
Alt3	D>B>A>C
Alt4	D>A>B>C

16	22 Students are evenly spaced on the circumference of a big circle. They are numbered 1to 22. which number is opposite to 17?
Alt1	8
Alt2	5
Alt3	7
Alt4	6

17	The fare of a luxury cab is Rs. X for the first five Kilometres and Rs,13/- per Kilometre thereafter. If a passenger pays Rs.2402/- for a journey of 187 kilometres, what is the value of X ?
Alt1	Rs.29
Alt2	Rs.39
Alt3	Rs.36
Alt4	Rs.31

18	An HR Company employs 4800 people out of which 45 per cent are males and 60 per cent of males are either 25 years or older. How many males are employed in that company who are younger than 25 years ?
Alt1	2640
Alt2	2160
Alt3	1296
Alt4	864

19	A person buys a shirt with marked price Rs.400/- at 20% discount. In order to make a profit of 20% the person should sell the shirt for
Alt1	Rs.400/-
Alt2	Rs.384/-
Alt3	Rs.320/-
Alt4	Rs.480/-

20	The following information is given:(i) Five friends P, Q, R, S and T travelled to five different cities of Chennai, Calcutta, Delhi, Bangalore and Hyderabad by five different modes of transport of Bus, Train, Aeroplane, Car and Boat from Mumbai. (ii) The person who travelled to Delhi did not travel by boat. (iii) R went to Bangalore by car and Q went to Calcutta by aeroplane.(iv) S travelled by boat whereas T travelled by train. (v) Mumbai is not connected by bus to Delhi and Chennai. Which of the following combinations of place and mode is not correct ?
----	--

Alt1	Delhi — Bus
Alt2	Calcutta — Aeroplane
Alt3	Bangalore — Car
Alt4	Chennai — Boat

21	A coenzyme involved in amino acid metabolism:-
Alt1	Pantothenic acid
Alt2	Vitamin B2
Alt3	Vitamin B6
Alt4	Vitamin B12

22	The kinetic effect of purely competitive inhibitor of an enzyme:-
Alt1	Increases K_m without affecting V_{max}
Alt2	Decreases V_{max} without affecting K_m
Alt3	Decreases K_m without affecting V_{max}
Alt4	Increases V_{max} without affecting K_m

23	A worker lifts a 10 kilogram block at a vertical height of 2 meters. The work he does on the block is:-
Alt1	5 Joules
Alt2	20 Joules
Alt3	49 Joules
Alt4	200 Joules

24	The spectrum of an oil flame is an example for:-
Alt1	Line absorption spectrum
Alt2	Continuous emission spectrum
Alt3	Continuous absorption spectrum
Alt4	Line emission spectrum

25	The value of acceleration due to gravity of the surface of the earth is:-
Alt1	6 m/s ²
Alt2	9.8 m/s ²
Alt3	4.9 m/s ²
Alt4	8 m/s ²

26	The action of Vitamin K in formation of clotting factor is through:-
Alt1	Golgi complex
Alt2	Endoplasmic reticulum
Alt3	Post transcription
Alt4	Post translation

27	The maximum kinetic energy of emitted electrons in a photoelectric effect does not depend upon:-
Alt1	intensity of the radiation
Alt2	frequency of the radiation
Alt3	work function of the material

Alt4	wavelength of the radiation
------	-----------------------------

28	Two forces have magnitudes of 11 newtons and 5 newtons. The magnitude of their sum could NOT be equal to which of the following values?
Alt1	16 newtons
Alt2	7 newtons
Alt3	5 newtons
Alt4	9 newtons

29	L and D notation for chemical samples was denoted based on:-
Alt1	Emil Fischer's work
Alt2	Ramachandran plot
Alt3	IUPAC rule
Alt4	Linus Pauling and Robert Coreys prediction

30	How does the hydrophobic effect influence the structures of large molecules?
Alt1	Polar groups are oriented on the surface, interacting with the water
Alt2	Nonpolar molecules are not easily solubilized in water and aggregate & Polar groups are oriented on the surface, interacting with the water
Alt3	Nonpolar molecules are not easily solubilized in water and aggregate
Alt4	Nonpolar molecules can mask the polar characteristics of the hydrophilic molecules

31	What is the heaviest of the twenty amino acids?
Alt1	Phenylalanine
Alt2	Tyrosine
Alt3	Tryptophan
Alt4	Histidine

32	On the molar basis if DNA has 20% cytosine, then percentage of adenine would be:-
Alt1	0.2
Alt2	0.3
Alt3	0.4
Alt4	0.6

33	Which of the following gives correct correlation between wave number and wave length?
Alt1	Wavenumber = 1/wavelength in cm
Alt2	Wavelength in nanometers = 1/wavenumber
Alt3	Wavenumber = wavelength in m-1
Alt4	Wavenumber = 1/wavelength in nm

34	Chlorophyll is a naturally occurring chelate compound in which central metal is:-
Alt1	iron
Alt2	copper
Alt3	magnesium
Alt4	calcium

35	Cabohydrates are:-
----	--------------------

Alt1	Source of energy
Alt2	Hereditary molecules
Alt3	Made up of pyrimidines
Alt4	Made up of amino acids

36	If a capacitor of capacity C is charged with charge Q at a potential of V, then the potential energy stored in the capacitor is:-
Alt1	$\frac{1}{2} CV$
Alt2	CV
Alt3	QV
Alt4	$\frac{1}{2} QV$

37	Cerebonic acid is present in:-
Alt1	Sphingomyelin
Alt2	Esterified cholesterol
Alt3	Cerebrosides
Alt4	Triglycerides

38	Pitch of the wave is measured in terms of:-
Alt1	Amplitude of the wave
Alt2	Speed of the wave
Alt3	Time period of the wave
Alt4	Frequency of the wave

39	Nobel prize awarded for an Indian to the new findings in:-
Alt1	X-radiation for collagen
Alt2	Ultraviolet-Visible radiation
Alt3	Difference in light scattering than incident radiation
Alt4	Change in nuclear spin

40	Which pair of amino acids absorbs the most UV light at 280 nm?
Alt1	Phenylalanine & Proline
Alt2	Trp & Tyrosine
Alt3	Threonine & Histidine
Alt4	Cystein & Asparagine

41	The orbitals are not occupied by:-
Alt1	2 electrons
Alt2	3 electrons
Alt3	1 electrons
Alt4	0 electrons

42	Isomers due to Chiral carbon is called:-
Alt1	Enantiomer
Alt2	Diastereoisomer
Alt3	Chain Iso
Alt4	None of the above

43	Two amino acids combine together to give a/an:-
Alt1	Dipeptide
Alt2	Salt bridge
Alt3	Alcohol
Alt4	Acid amine

44	Which compounds are isomers?
Alt1	ethanol and methanol
Alt2	n-propanol and iso-propanol
Alt3	methanol and methanal
Alt4	ethane and ethanol

45	In which of the processes, does the internal energy of the system remain constant?
Alt1	Isobaric
Alt2	Isothermal
Alt3	Isochoric
Alt4	Adiabatic

46	SWISSPROT protein sequence database began in:-
Alt1	1988
Alt2	1986
Alt3	1987
Alt4	1985

47	Continued consumption of a diet rich in butter, red meat and eggs for a long period may lead to:-
Alt1	Hypercholesterolemia
Alt2	Kidney stones
Alt3	Vitamin A toxicity
Alt4	Urine laden with ketone bodies

48	What is C ₆ H ₆ ?
Alt1	butyne
Alt2	benzyne
Alt3	butane
Alt4	benzene

49	Hooke's law essentially defines:-
Alt1	Strain
Alt2	Stress
Alt3	Elastic limit
Alt4	Yield point

50	A motorboat covers a given distance in 6 hours moving downstream on a river. It covers the same distance in 10 hours moving upstream. The time it takes to cover the same distance in still water is:-
Alt1	7.5 hours

Alt2	8 hours
Alt3	9 hours
Alt4	6.5 hours

51	Moon has no atmosphere because:-
Alt1	It is far away from the surface of the earth
Alt2	Its is far away from the Sun
Alt3	The r.m.s. velocity of the gas molecules is more than the escape velocity of the moon
Alt4	None

52	Patients suffering from cholera are given a saline drip because:-
Alt1	NaCl is an important component of energy supply
Alt2	Na ⁺ ions help in stopping nerve impulses and hence, sensation of pain
Alt3	NaCl furnishes most of the fuel required for cellular activity
Alt4	Na ⁺ ions help in the retention of water in the body tissues

53	A stone of mass 500 gram, attached to the end of a string of length 1 m is whirled in a horizontal circle at a speed of 10 m/s. What is the tension in the string?
Alt1	25 N
Alt2	50,000 N
Alt3	50 N
Alt4	25,000 N

54	Which one is the most abundant protein in the animal world?
Alt1	Collagen
Alt2	Hemoglobin
Alt3	Trypsin
Alt4	Insulin

55	In which of the following disorders, blood has defective haemoglobin?
Alt1	Hematoma
Alt2	Hemophilia
Alt3	Hematuria
Alt4	Sickle cell anaemia

56	Proline is known as helix breaker. Cause of this break is:-
Alt1	Proline is rigid in structure
Alt2	Proline is similar to Histidine
Alt3	Proline is a hydrophilic residue
Alt4	Lack of amide hydrogen

57	The emissive power of a perfect black body is:-
Alt1	0.5
Alt2	1
Alt3	0.75
Alt4	0

58	Which of the following amino acid contain an imidazolium moiety?
Alt1	Valine
Alt2	Cysteine
Alt3	Alanine
Alt4	Histidine

59	Which of the following statements about covalently bonded molecules is false?
Alt1	Noncovalent bonds may also be present, especially if the molecule is large
Alt2	The chemical bonds that hold the molecule together are relatively strong
Alt3	Electrons are shared between the atoms that make up the molecule
Alt4	Such molecules often result from the interaction of ionized atoms

60	For a negative point charge, the electric field vectors:-
Alt1	Point radially in toward the charge
Alt2	Point radially away from the charge
Alt3	Cross at infinity
Alt4	Circle the charge

61	Trypsin does not digest after Lys/Arg when the following residue is:-
Alt1	Trp
Alt2	His
Alt3	Pro
Alt4	Ala

62	A simple pendulum is suspended from the ceiling of a lift. When the lift is at rest its time period is T. With what acceleration should the lift be accelerated upwards in order to reduce its period to $T/2$? (g is acceleration due to gravity).
Alt1	4g
Alt2	2g
Alt3	3g
Alt4	g

63	The slope of Lineweaver-Burk plot for Michaelis-Menten equation is:-
Alt1	K_m/V_{max}
Alt2	$K_m \cdot V_{max}$
Alt3	$1/K_m$
Alt4	V_{max}/K_m

64	Which of the following alcohols would be most soluble in water?
Alt1	octanol
Alt2	ethanol
Alt3	methanol
Alt4	butanol

65	Which one of the following statements is incorrect?
Alt1	Tuberculosis is highly infectious and can be spread by airborne droplets
Alt2	Tuberculosis is caused by a rod-shaped bacterium, Mycobacterium tuberculosis

Alt3	Tuberculosis can't be treated by antibiotics
Alt4	In Pulmonary Tuberculosis the elasticity of lungs is reduced

66	Which of the following hybrid is more stable?
Alt1	AATGGC TTACCG
Alt2	GACTGA CTGACT
Alt3	GATCGC CTAGCG
Alt4	ATAGGG TATCCC

67	A spring is compressed. The Potential Energy of the compressed spring:-
Alt1	remains unchanged
Alt2	increase
Alt3	becomes zero
Alt4	decrease

68	If the linear momentum of a body is doubled, then the kinetic energy of that body:-
Alt1	increases by 4 times
Alt2	increases by 2 times
Alt3	decreases by 4 times
Alt4	decreases by 2 times

69	Which of the following statements is incorrect regarding transport proteins?
Alt1	They are present in cell membranes
Alt2	They are required to transport hydrophobic steroids across cell membranes
Alt3	They serve to carry polar molecules across the hydrophobic cell membrane
Alt4	They are required to transport amino acids across cell membranes

70	An acid is:-
Alt1	Liquid that can dissolve other matter
Alt2	Chemical species that donates hydrogen ions or protons
Alt3	Chemical species that donates electron
Alt4	Chemical species that accepts hydrogen ions or protons

71	Beta pleated sheet is:-
Alt1	Tertiary protein structure
Alt2	Primary protein structure
Alt3	Secondary protein structure
Alt4	Quaternary protein structure

72	If $x = \log_2 a$, $y = \log_3 2a$ and $z = \log_4 3a$ then $xyz + 1$ is:-
Alt1	$2xz$
Alt2	$2yz$
Alt3	$2xy$
Alt4	yz

73	Microtubules are not involved directly in which of the following processes?
Alt1	maintains reticular architecture of the ER
Alt2	amoeboid motion
Alt3	motion of whole cells via flagella
Alt4	movement of mitotic spindle

74	N-Glucosyl linkage joins 1st carbon of pentose sugar with:-
Alt1	N-9 of pyrimidine
Alt2	N-9 of purine
Alt3	N-3 of purine
Alt4	N-3 of pyrimidine

75	The product of two determinants of the n th order is a determinant of the:-
Alt1	$(n + 1)$ th order
Alt2	n th order
Alt3	$(n + 2)$ th order
Alt4	$(n + 4)$ th order

76	The base pair per 3- helical turn in C-DNA is:-
Alt1	4
Alt2	28
Alt3	26
Alt4	9.33

77	Which of the following statements about histones is incorrect?
Alt1	They account for approximately one-fifth of the mass of a chromosome
Alt2	they are extensively modified after their translation
Alt3	they are highly basic because they contain many positively charged amino acid side chains
Alt4	in combination with DNA, they are the primary constituents of chromatin

78	The nucleolus is site where:-
Alt1	translation occurs
Alt2	protein recently imported from the cytoplasm are deposited
Alt3	ribosomal RNA is transcribed and ribosomes are assembled
Alt4	DNA replication occurs

79	DNA sequencing by Sangers method involves the use of:-
Alt1	ribonucleotide

Alt2	fluorodinitrobenzene
Alt3	2', 3'-dideoxyribonucleotide
Alt4	3'-deoxyribonucleotide

80	There is a slide in a park. One of its side walls has been painted in colour with a message "KEEP THE PARK GREEN AND CLEAN". If the sides of the wall are 15m, 11m and 6 m, find the area painted in colour.
Alt1	12 m ²
Alt2	$10\sqrt{2} \text{ m}^2$
Alt3	16 m ²
Alt4	$20\sqrt{2} \text{ m}^2$

81	Protein binding regions of DNA are identified by one of the following techniques:-
Alt1	southern blotting
Alt2	finger printing
Alt3	western blotting
Alt4	footprinting

82	Melting temperature (T _m) of DNA is the temperature at which:-
Alt1	50% of the DNA is denatured
Alt2	DNA melts completely
Alt3	80% of the DNA is denatured
Alt4	20% of the DNA is denatured

83	What will be the length of a chord which is at a distance of 5 cm from the centre of a circle of radius 13 cm?
Alt1	24 cm
Alt2	6 cm
Alt3	36 cm
Alt4	12 cm

84	Which of the following contributes nitrogen atoms to both purine and pyrimidine rings?
Alt1	carbamoyl phosphate
Alt2	carbon dioxide
Alt3	aspartate
Alt4	glutamine

85	A candidate is selected for interview for three posts. For the first post there are 3 candidates, for the second 4 and for the third 2. What is the probability that the candidate is selected for at least one post?
Alt1	1/4
Alt2	1/3
Alt3	1/2
Alt4	3/4

86	In given nucleic acid, G+A is not equal to C+T content. The indicates that the sample is:-
Alt1	ssDNA
Alt2	AT rich
Alt3	ds DNA
Alt4	GC rich

87	There are three events one of which must and only happen. The odds are 8:3 against A, 5:2 against B. Find the odds against C.
Alt1	43:77
Alt2	77:43
Alt3	34:43
Alt4	43:34

88	If the ratio of mode and median is 7:4, then the ratio of mean and mode is:-
Alt1	5:14
Alt2	5:12
Alt3	7:11
Alt4	4:7

89	What is the next step after discovering a faulty gate within an IC?
Alt1	repair the gate
Alt2	recheck the power source
Alt3	replace the IC involved
Alt4	resolder the tracks

90	Homonomous metamerism is observed in:-
Alt1	Molluscs
Alt2	Arthropods
Alt3	Annelids
Alt4	Echinoderms

91	Polymorphism is present in:-
Alt1	Nematoda
Alt2	Porifera
Alt3	Hydrozoa
Alt4	Mollusca

92	Foramen of Panizza, a hole between right and left aorta, is present in:-
Alt1	Snakes
Alt2	Turtles
Alt3	Crocodiles
Alt4	Lizards

93	Pseudocoelom is present in:-
Alt1	Trilobite
Alt2	Nematode

Alt3	Mollusc
Alt4	Chordate

94	Echidna is an egg laying:-
Alt1	Mammal
Alt2	Reptile
Alt3	Amphibian
Alt4	Bird

95	Which is a type of Electrically-Erasable Programmable Read-Only Memory?
Alt1	Flange
Alt2	Flash
Alt3	Fury
Alt4	RAM

96	After doing a low-level format, what would be the next step in configuring the hard drive in a system?
Alt1	Partition had disk
Alt2	Format DOS partition
Alt3	Configure DMA channel and back-up interrupt
Alt4	Install operating system

97	From what location are the 1st computer instructions available on boot up?
Alt1	CPU
Alt2	CONFIG.SYS
Alt3	boot.ini
Alt4	ROM BIOS

98	A set contains n elements. The power set of this set contains:-
Alt1	2n elements
Alt2	$2^{n/2}$ elements
Alt3	n elements
Alt4	n^2 elements

99	In a flight of 2800 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 100 km/hr and time increased by 30 minutes. Find the original duration of flight.
Alt1	3.5 hrs
Alt2	3 hrs
Alt3	2.5 hrs
Alt4	4.5 hrs

100	Each letter of the word "INDEPENDENT" is written on individual cards. The cards are placed in a box and mingled thoroughly. A card with letter "N" is removed from the box. Now find the probability of picking a card with a consonant.
Alt1	7/11
Alt2	2/5

Alt3	7/10
Alt4	3/5

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