The approximate number of genes in human is:-

- 35000
- 15000
- 22000
- 30000

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

- awk
- filter
- grep
- text Processor

Command line interpreter in UNIX is called as:-

- Kernel
- Compiler
- Utility
- Shell

A periplasmodial 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

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

- always zero
- constant
- Increasing
- decreasing

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

- Sodium chloride
Calcium chloride
Magnesium chloride
Potassium chloride

7 of 100
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

8 of 100
134 PU_2015_310
During hypothesis testing, a researcher is usually interested in supporting:-
- Statistical inference
- Null Hypothesis
- Null and Alternative Hypotheses
- Alternative Hypothesis

9 of 100
133 PU_2015_310
The standard deviation of a sampling distribution is known as:-
- Sample error
- Variance
- Standard error
- Sampling error

10 of 100
160 PU_2015_310
Megaphylls:-
- developed from roots
- typically have no vein system
- are characteristically green
- are found only in seed plants

11 of 100
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
Which of the following symbol represents a population parameter?

- SD
- R
- \( \sigma \)
- SE

Mitochondria carry out oxidative phosphorylation by means of:

- Conformational coupling
- Photophosphorylation
- Photorespiration
- Chemiosmotic coupling

The deposit callose is best stained with:

- Toulidine blue-O
- Safranin
- Resourcin blue
- Fast green

The unique address of a web page is called as:

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

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:

- \( 15\pi \text{ cm}^3 \)
- \( 16\pi \text{ cm}^3 \)
- \( 12\pi \text{ cm}^3 \)
- \( 18\pi \text{ cm}^3 \)

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

- bGH (bovine growth hormone)
Insulin
erythropoietin
clotting factor VIII

18 of 100
111 PU_2015_310
Software designed to protect a computer from unauthorized access through network is called as:-
☐ User Management
☐ Gateway
☐ Protocol
☐ Firewall

19 of 100
117 PU_2015_310
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

20 of 100
172 PU_2015_310
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

21 of 100
185 PU_2015_310
Induced electric currents can be explained using which of the following laws?
☐ Faraday's Law
☐ Gauss's Law
☐ Ohm's Law
☐ Ampere's Law

22 of 100
122 PU_2015_310
The errors showed by the language compilers are called as:-
☐ syntax errors
☐ internal errors
☐ language errors
☐ logical errors
23 of 100
179 PU_2015_310
As defined in physics, work is:-
☐ always a positive quantity
☐ a scalar quantity
☐ a vector quantity
☐ always zero

24 of 100
188 PU_2015_310
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

25 of 100
164 PU_2015_310
The fruit of a cucumber is termed a(n):-
☐ achene
☐ hesperidium
☐ pepo
☐ drupe

26 of 100
116 PU_2015_310
In DBMS collection of records make a:-
☐ Row
☐ Sheet
☐ Field
☐ Table

27 of 100
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

28 of 100
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

29 of 100
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

30 of 100
126 PU_2015_310
SQL command to change some of the values of columns of a table is:-
☐ UPDATE
☐ MODIFY
☐ EDIT
☐ CHANGE

31 of 100
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

32 of 100
178 PU_2015_310
The work done by a friction force is:-
☐ Always zero
☐ Always negative
☐ Always positive
☐ Either positive or negative depending upon the situation

33 of 100
166 PU_2015_310
DNA staining is done by:-
☐ Giesma staining
☐ Crystal violet
☐ Feulgen staining
☐ Methylene blue
The C language construct that allows a variable to be tested for equality against a list of values is called:

- Continue
- Switch
- Break
- While

The rate of synonymous nucleotide substitution is high at:

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

Iron is what type of magnetic material? Is it:

- paramagnetic
- diamagnetic
- ferromagnetic
- non-magnetic

What is the hexadecimal equivalent of decimal number 123?

- B7
- 7C
- 7B
- C7

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

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

- Angular momentum
Angular displacement  
Angular acceleration  
Angular velocity

40 of 100  
170 PU_2015_310
Connecting link between annelids and arthropods is:-
- Aplysia
- Limulus
- Peripatus
- Neopilina

41 of 100  
135 PU_2015_310
The conserved region in a homeotic gene is known as:-
- Homeobox
- Homeosplice
- Homeoregion
- Homeodomain

42 of 100  
175 PU_2015_310
Electric current may be expressed in which one of the following units?
- coulombs/volt
- joules/coulomb
- coulombs/second
- ohms/second

43 of 100  
177 PU_2015_310
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

44 of 100  
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
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

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

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

Computer file system architecture FAT stands for:

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

C function that allocates memory is:

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

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

51 of 100
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

52 of 100
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

53 of 100
Telomeric sequences are found in:

- HAC
- PAC
- YAC
- BAC

54 of 100
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

55 of 100
The standard error can be minimized by:

- Stratified sampling
- Repeated sampling
- Small sampling
- Large sampling
Data that does not change throughout the program/algorithm is called as:
- Constant
- Vector
- Scalar variable
- Variable

What is the binary equivalent of decimal number 36?
- 100111
- 100110
- 100101
- 100100

Dendritic branches within the cuticle are composed of:
- suberin
- protein
- lipids
- polysaccharides

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

The cut-off to decide the rejection of a null hypothesis is:
- Gamma level
- Delta level
- Beta level
- Alpha level

HPLC uses the following for detection:
- UV light
gamma-rays
X-rays
IR rays

62 of 100
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

63 of 100
254 PU_2015_310
When compared to Red light, blue light has:-
- Equal energy
- Lower energy
- Higher energy
- Medium energy

64 of 100
229 PU_2015_310
The time period of a communication satellite is:-
- 1 hour
- 24 hours
- 30 days
- 365 days

65 of 100
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

66 of 100
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
The slope of the graph plotted with potential energy against vertical position represents:
- weight of the body
- acceleration
- velocity
- kinetic energy

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:
- \(\sqrt{10}\) ms\(^{-1}\)
- 100 ms\(^{-1}\)
- 5 ms\(^{-1}\)
- 50 ms\(^{-1}\)

R – O – R represents which class of organic compounds?
- esters
- alcohols
- acids
- ethers

Which of the following supports the transverse nature of the light wave?
- polarization
- interference
- diffraction
- wave motion of light

Which compound is a saturated hydrocarbon?
- ethene
- ethanol
- ethyne
- ethane

According to Curie-Weiss law, the susceptibility of a paramagnetic material with absolute temperature \(T\) is:
- \(\chi \propto T^2\)
73 of 100
251 PU_2015_310
Length of covalent bond is in the order of:
☐ cm
☐ m
☐ mm
☐ A

74 of 100
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
☐ ½ CV
☐ ½ QV
☐ CV

75 of 100
252 PU_2015_310
pH is a measure of:
☐ pressure of hydrogen
☐ hydrogen ion concentration
☐ hydroxyl ion concentration
☐ All the above

76 of 100
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

77 of 100
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:
☐ ∝ a
☐ ∝ 1/a
☐ ∝ a²
☐ independent of a
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:

- $R^2$
- $R^3$
- $R$
- $R^2$

R – OH represents which class of organic compounds?

- alkanes
- acids
- alcohols
- ethers

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

- zero
- $\text{div } A$
- $\text{curl } A$
- $\text{grad } A$

The correct order of increasing bond length of $\text{C} – \text{H}$, $\text{C} – \text{O}$, $\text{C} – \text{C}$ and $\text{C} = \text{C}$ is:

- $\text{C} – \text{H} < \text{C} – \text{C} < \text{C} – \text{O} < \text{C} = \text{C}$
- $\text{C} – \text{H} < \text{C} < \text{C} – \text{O} < \text{C} = \text{C}$
- $\text{C} – \text{H} < \text{C} < \text{C} – \text{O} < \text{C} = \text{C}$
- $\text{C} – \text{H} < \text{C} < \text{C} – \text{O} < \text{C} = \text{C}$

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

Tautomers have:

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

**84 of 100**
263 PU_2015_310
Insulin regulates the metabolism of:-
- glucose
- vitamins
- amino acids
- minerals

**85 of 100**
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

**86 of 100**
271 PU_2015_310
ClogP is a measure of:-
- Log
- Reactivity
- Pressure
- Liphophilicity

**87 of 100**
261 PU_2015_310
Which one of the following is a covalent crystal?
- Ice
- Rock salt
- Dry ice
- Quartz

**88 of 100**
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
89 of 100
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

90 of 100
266 PU_2015_310
Stereoisomers:-
☐ have different chemical formula
☐ are mirror images
☐ are non super-imposable mirror images
☐ all the above

91 of 100
265 PU_2015_310
Geometrical isomers have:-
☐ a) same chemical formula
☐ b) same physical properties
☐ c) Both (a) and (b)
☐ d) Different physical properties

92 of 100
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

93 of 100
262 PU_2015_310
Which is a peptide bond?
☐ –CH₂-NH₂
☐ –CO-NH-
☐ –CH₂-O-CH₂
☐ –CH₂-CH₂-

94 of 100
269 PU_2015_310
The number of disulphide linkages present in insulin are:-
☐ 1
☐ 4
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

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

Which is a characteristic of dicots?
- Parallel leaf veins
- Roots develop from radicle
- Secondary growth usually absent
- Flower parts in multiples of three

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

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
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