

## Section 1 - Section 1

## Question No.1

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Transgenic animals used for gene farming or molecular farming called

- Biopests
- Cell Culture
- Biofarmers
- Hybridomas

## Question No.2

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Bookmark 

Which soil needs the most quick lime to make it neutral for healthy plant growth

- Soil pH 3.0
- Soil pH 7.0
- Soil pH 9.0
- Soil pH 5.0

## Question No.3

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What is the term used to define the compounds that dissolve easily in water?

- Hydrophobic
- Hydrophilic
- Amphipathic
- Non-polar

## Question No.4

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When a protein has two or more polypeptide subunits, their arrangements in three-dimensional space is referred to as

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

## Question No.5

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Which one of the following methods, the convergence is highly sensitive to starting value?

- RungeKutta method
- Newton-Raphson method
- Bisection method
- Regula-falsi method

## Question No.6

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DNA inserted with in the thymine kinase gene of virus by a process of recombination forms

- Vaccinia virus
- BPV Vectors
- Polyoma virus vector
- Bacculo virus vector

## Question No.7

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The term Bioinformatics was coined by

- Margaret Daynoff
- J.D. Watson
- Pauling Hogeweg
- Fredric Sanger

## Question No.8

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

Job was a tiny man, barely five feet tall, with *a spright walk*

- spright walk
- a sprightly walk
- a sprightly walking
- spright walkingly

## Question No.9

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The element listed in periodic table that is color less and non-metal gas

- Mercury
- Nitrogen
- Bromine
- Nickel

## Question No.10

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If A+B means A is daughter of B,  
A-B means A is husband of B  
A x B means A is brother of B

From the statement  $A \times B \times C \times D$ , which of the following statement is not necessarily true?

- D is brother of C
- B is the brother of A
- A, B, C are male
- C is the brother of A

**Question No.11**

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Bookmark

The genomic information is stored and replicated in

- Mitochondria
- Cytoplasm
- Nucleus
- Plasma membrane

**Question No.12**

4.00

Bookmark

She studies very hard for the exams, \_\_\_\_\_?

- doesn't she?
- is it?
- isn't it?
- does she?

**Question No.13**

4.00

Bookmark

Which symbol is used to represent the wavelength of the electromagnetic radiation?

- $\gamma$
- $\omega$
- $\lambda$
- $\Omega$

**Question No.14**

4.00

Bookmark

Any number of particles can go to the same quantum state if the particles are

- Leptons
- Bosons
- Fermions
- Quarks

**Question No.15**

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The active form of vitamin B1 is called Thiamine Pyrophosphate which acts as –

- Adjuvant in production of antigen specific T cell clones
- Co-enzyme in oxidative decarboxylation of  $\alpha$ -keto acids
- Catalyzer in determining respiratory quotient
- Co-enzyme in Kreb's Cycle

**Question No.16**

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It is necessary to apply quantum statistics to a system of particles if

- The particles have identical mass and charge
- The particles are interacting
- The mean free path of the particles is comparable to the inter-particle separation
- There is substantial overlap between the wave functions of the particles

**Question No.17**

4.00

Bookmark

The First law of thermodynamics is conservation of

- Energy
- Momentum
- Temperature
- Pressure

**Question No.18**

4.00

Bookmark

What do prokaryotic cells lack?

- Membrane-bound nucleus
- Cell membrane
- Cell wall
- Cytoplasm

**Question No.19**

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Bookmark

DNA photolyase recognizes which of the following in order to repair pyrimidine dimers:

- A specific palindromic sequence
- A free 3' end on the affected DNA strand
- A specific origin for repair to initiate
- Distortion in the double helix

**Question No.20**

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Bookmark

Based on the information given answer the following question.

1. In a family of six persons, there are people from three generations. Each has separate professions and they like different colours. There are two couples.
2. Shyam is an Engineer and his wife is not a doctor and she does not like Red colour.
3. Chartered Accountant likes green colour and his wife is a teacher.
4. Manisha is the mother-in-law of Sunita and she likes orange colour.
5. Vimal is the grand father of Tarun and tarun is the Principal and likes black colour.
6. Nyna is the grand daughter of Manisha and she likes blue colour. Nyna's Mother likes white colour.

What is the profession of Sunita?

- Chartered Accountant
- Teacher
- Cannot be determined
- Principal

**Question No.21**

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The opposite process of evaporation is

- Boiling
- Condensing
- Melting
- Freezing

**Question No.22**

4.00

Bookmark

Name the super computer developed by Indian scientists

- Sequoia
- Jaguar
- Param
- Mira

**Question No.23**

4.00

Bookmark

Find the odd one out?

- Debit
- Deposit
- Withdrawal
- Deduction

**Question No.24**

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Bookmark

If logarithmic growth of *E.coli* could be sustained for 48 h, with adequate nutrients, the mass of bacterial cells would equal a volume 500 times that of the planet earth. Which of the following are limiting factors in microbial growth?

- Accumulation of toxic products in the growth medium
- Oxygen
- Accumulation of peroxide
- Accumulation of oxygen free radicals

**Question No.25**

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- 1
- 3
- 2
- 4

**Question No.26**

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Nidhi walks 10 metres in front and 10 metres to the right. Then every time turning to her left, she walks 5, 15 and 15 metres respectively. How far is Nidhi now from her starting point?

- 10 metres
- 5 metres
- 15 metres
- None of the above

**Question No.27**

4.00

Among the following immunoglobulin's mediate immediate hypersensitivity and is response for parasitic infections?

- IgM
- IgA
- IgE
- IgG

## Question No.28

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Bookmark 

What is the dissociation energy for O-H bond?

- 435 kJ/mol
- 414 kJ/mol
- 470 kJ/mol
- 419 kJ/mol

## Question No.29

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Bookmark 

The quantitative relationships among pH, the buffering action of a mixture of weak acid with its conjugate base, and the  $pK_a$  of the weak acid is given by the –

- EMP- reaction
- Henderson-Hasselbalch reaction
- Photo-oxidative reaction
- Oxidation – reduction reactions

## Question No.30

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Being awarded the Best Singer in 2010 marked a \_\_\_\_\_ in her life.

- yardstick
- milestone
- sign-post
- memorial

## Question No.31

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Identify the smallest particle of an element which can take part in any chemical change

- Neutron
- Atom
- Proton
- Nucleus

## Question No.32

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Bookmark 

Crumb : Bread ::

- Splinter : Wood
- Tea : Cup
- Flower : Vase
- Water : Bucket

## Question No.33

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Bookmark 

What is the solution of the system?

$$\begin{pmatrix} 1 & -2 \\ 2 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} -15 \\ 10 \end{pmatrix}$$

- $x = 1, y = 4$
- $x = 1, y = 8$
- $x = -1, y = 4$
- $x = -1, y = 8$

## Question No.34

4.00

Bookmark 

Choose the best synonym of the italicized word.

Children of excessively indulgent parents often become very *recalcitrant*.

- insolent
- disobedient
- dependent
- indolent

## Question No.35

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Bookmark 

How many nanometers are there in one Angstrom?

- 1
- 0.1
- 10
- 100

## Question No.36

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Bookmark 

The two amino acids are linked by

- Ionic bond
- Hydrogen bond

- Peptide bond
- Amino bond

**Question No.37**

4.00

Bookmark 

What does the CPU contain?

- A card reader and printing unit
- An analytical engine and control progressing unit
- An arithmetic logic unit and card reader
- A control unit and an arithmetic login unit

**Question No.38**

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Bookmark 

5-Bromouracil is a base analog that can cause mutation when incorporated into DNA. Which of the following is the most likely changes that 5-Bromouracil induces

- T : A to C : G
- G : C to T : A
- C : G to A : T
- T : A to A : T

**Question No.39**

4.00

Bookmark 

When a perfect gas expands freely against the vacuum in an insulated vessel, the gas has undergone

- Change in temperature
- Change in phase
- Change in entropy
- An increase in pressure

**Question No.40**

4.00

Bookmark 

Study the following information carefully and answer the question below it

Lakshman passes through seven lanes to reach his school. He finds that 'Truth lane' is between his house and 'Lie lane'. The third lane from his school is 'Karma lane'. 'Dharma lane' is immediately before the 'Yog lane'. He passes 'Salvation lane' at the end, 'Lie lane' is between 'Truth lane' and 'Dharma lane', the sixth lane from his house is 'Devotion lane'.

If Lakshman's house, each lane and his school are equidistant and he takes 2 minutes to pass one lane, then how long will he take to reach school from his house?

- 15 minutes
- 16 minutes
- 13 minutes
- 14 minutes

**Question No.41**

4.00

Bookmark 

In the complex number system, which of the following is equal to  $(12 - i)(5 + 10i)$ ? Take  $i = \sqrt{-1}$

- 60
- $60 + 115i$
- 70
- $70 + 115i$

**Question No.42**

4.00

Bookmark 

The length of DNA associated with a protein is determined by using a technique called

- DNA finger printing
- DNA printing
- DNA Foot printings
- DNA replication

**Question No.43**

4.00

Bookmark 

Enzymes accelerate a reaction by which one of the following strategies

- Increasing kinetic energy of the substrate
- Increasing the turn-over number of enzymes
- Increasing the free energy difference between substrate and the product
- Decreasing energy required to form the transition state

**Question No.44**

4.00

Bookmark 

Which device is required for the Internet landline connection?

- Joystick
- CD drive
- NIC card
- Modem

**Question No.45**

4.00

Bookmark 

What are the basic repeating units of proteins?

- Peptides
- Glucose
- Amino Acids
- Fatty Acids

**Question No.46**

4.00

Bookmark 

Which one of the following is a charged amino acid?

- Histidine
- Alanine
- Tyrosine
- Cysteine

**Question No.47**

4.00

Bookmark

Which of the following bacterial transport method is energy independent?

- Facilitated diffusion
- Simple diffusion
- ATP-dependent active transport
- Proton gradient energized active transport

**Question No.48**

4.00

Bookmark

Which statistics will apply to deuterons and alpha particles?

- Fermi-Dirac
- Bose-Einstein
- Maxwell-Boltzmann
- All of the above

**Question No.49**

4.00

Bookmark

Each record in a data base is called an

- Ticket
- Record
- File
- Entry

**Question No.50**

4.00

Bookmark

All natural processes are irreversible. This is a direct consequence of

- First law of thermodynamics
- Third law of thermodynamics
- The second law of thermodynamics
- Gibbs paradox

**Question No.51**

4.00

Bookmark

The CD-ROM stands for

- Compactable Disk Read Only Memory
- Compactable Read Only Memory
- Compact Disc Read Only Memory
- Compact Data Read Only Memory

**Question No.52**

4.00

Bookmark

Choose the best synonym of the italicized word.

Dr. Elango is in the habit of using *obsolete* words.

- wrong
- simple
- outdated
- difficult

**Question No.53**

4.00

Bookmark

Choose the one which helps to convert the C programs into machine language

- An operating system
- A compiler
- An arithmetic unit
- An editor

**Question No.54**

4.00

Bookmark

A can finish a work in 18 days and B can do the same work in half the time taken by A. Then, working together, what part of the same work they can finish in a day?

- 0 1/2
- 0 1/4
- 0 1/6
- 0 1/8

**Question No.55**

4.00

Bookmark

The detection test for Hydrogen:

- Relights a glowing splint

- Turns lime water milky
- Turns blue litmus red and then leaches it
- Gives a Squeaky pop with a lit splint

**Question No.56**

4.00

Bookmark

Select the Pair that best represents the relationship that is given in the question:

Explore : Discover

- Research : Learn
- Tree : Wood
- Think : Relate
- Books : Knowledge

**Question No.57**

4.00

Bookmark

Which one of the following contribute to intrinsic fluorescence to a protein

- Charged amino acids
- Aromatic amino acids
- Disulfide bonds
- Branched chain amino acids

**Question No.58**

4.00

Bookmark

Which of the following is a property of entropy?

- Entropy increases during an irreversible operation
- Net change in entropy in a reversible cycle is zero
- All the above
- Change in entropy during an adiabatic operation is zero

**Question No.59**

4.00

Bookmark

Reverse transcriptase is an enzyme unique to the retroviruses. Which one of the following is a function of the enzyme reverse transcriptase?

- RNA-dependent DNA polymerase activity
- DNase activity
- RNA isomerase activity
- RNA-dependent RNA polymerase activity

**Question No.60**

4.00

Bookmark

Which is the only function all C programs must contain?

- start()
- system()
- main()
- getch()

**Question No.61**

4.00

Bookmark

The following tells the computer how to use its components

- Mother board
- Operating system
- Network
- Utility

**Question No.62**

4.00

Bookmark

Crown gall disease in plants is caused by

- Virus
- Bacteria
- Ti Plasmids
- Pi Plasmids

**Question No.63**

4.00

Bookmark

What is ASCII stands for?

- American Stable Code for International Interchange
- American Standard Code for Interchange Information
- American Standard Code for Information Interchange
- American Standard Code for Institutional Interchange

**Question No.64**

4.00

Bookmark

The bowel contains many microorganisms but the most prevalent bacterium is

- E. coli*
- Klebsiella*
- B. Fragilis*
- Staphylococcus*

**Question No.65**

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 following information is not required for the above lecture arrangements?

- All are required
- Only (i)
- Only (ii)
- Only (iii)

**Question No.66**

4.00

Bookmark 

What is the molecular weight of methane (CH<sub>4</sub>)? Take the atomic weight of C as 12.01 g/mol and H as 1.01 g/mol.

- 16.05 g
- 13.02 g
- 4.01 g
- 12.25 g

**Question No.67**

4.00

Bookmark 

How many number(s) of the peptide bond(s) are there in a tri-peptide?

- Four
- Two
- Three
- One

**Question No.68**

4.00

Bookmark 

An organism with two identical alleles is

- Heterozygous
- Dominant
- Hybrid
- Homozygous

**Question No.69**

4.00

Bookmark 

According to Mendelism which character shows dominance

- Green color in seed coat
- Terminal position of flower
- Green pod color
- Wrinkled seeds

**Question No.70**

4.00

Bookmark 

**Statement:** Apart from its entertainment value of Television, its educational value cannot be ignored

**Assumptions:**

- I. People take Television to be the means of entertainment only.
  - II. The educational value of Television is not realized properly
- If both I and II are implicit
  - If neither I nor II is implicit
  - If only assumption I is implicit
  - If only assumption II is implicit

**Question No.71**

4.00

Bookmark 

RNA molecules that exhibit catalytic activity are called

- Ribozymes
- Ribosomes
- Ribonucleases
- mRNAs

**Question No.72**

4.00

Bookmark 

Which form of the amino acids are manufactured in cells and incorporated into proteins?

- D-amino acids
- Both L and D-amino acids



- L-amino acids
- Alpha-amino acids

**Question No.73**

4.00

Bookmark 

**Statement:** Ten Candidates, who were on the waiting list could finally be admitted to the course.

**Assumptions:**

- A large number of candidates were on the waiting list.
- Wait listed candidates do not ordinarily get admission.

- If both I and II are implicit
- If neither I nor II is implicit
- If only assumption I is implicit
- If only assumption II is implicit

**Question No.74**

4.00

Bookmark 

Gibbs free energy (G) expresses the amount of energy capable of doing work during a reaction at constant –

- Temperature and volume
- Temperature and mass
- Pressure and volume
- Temperature and Pressure

**Question No.75**

4.00

Bookmark 

What is meant by isomers?

- Two or more number of compounds that are have different kinds of atoms with the similar structural arrangement
- Two or more number of compounds that have same molecular formula, same connectivity, and different structural arrangement
- Two or more number of compounds that have same formula but differ from each other in the structural arrangement
- Two or more number of compounds that have a same molecular formula, but have different connectivity

**Question No.76**

4.00

Bookmark 

DNA can be transferred from one bacterium to another by a number of processes. Uptake by a recipient cell of soluble DNA released from a donor cell is defined as

- Conjugation
- Transduction
- Recombination
- Transformation

**Question No.77**

4.00

Bookmark 

The best method to separate colored substances in a lab is

- Chromatography
- Distillation
- Evaporation
- Filtration

**Question No.78**

4.00

Bookmark 

When their father died, their elder brother sold the old house and \_\_\_\_\_ in a small flat in a far-off suburb

- set them down
- put them up
- put them down
- set them up

**Question No.79**

4.00

Bookmark 

This is the school where I studied till class 5.

The underlined word is a

- pronoun
- preposition
- adverb
- adjective

**Question No.80**

4.00

Bookmark 

Technique to produce cells capable of producing continuous single type of antibody to predefined antigen is given by

- J.R. Birch
- Rosss & John
- Kohleer & Mistein
- Wheclock & Morris

**Question No.81**

4.00

Bookmark 

The first published complete genome sequence was of

The first published complete genome sequence was of:

- T4 Phage
- ØX 174
- M13 Phage
- λ- Phage

**Question No.82**

4.00

Bookmark

Which one of the following cannot be obtained from X-ray crystallography study?

- The absolute configuration of a molecule
- A distance between two bonded atoms
- The spacing between two parallel aromatic rings
- The vibration frequency of a chemical group

**Question No.83**

4.00

Bookmark

MPG Extension refers to

- Movie file
- Word file
- Image file
- Text file

**Question No.84**

4.00

Bookmark

DNA from a host sample can be amplified by a process known as the polymerase chain reaction (PCR). Which of the following is required for PCR?

- A universal probe to detect the amplified product
- A single nucleotide primer
- A heat-sensitive DNA polymerase enzyme
- Knowledge of the genetic sequence to be amplified

**Question No.85**

4.00

Bookmark

Variable number of tandem repeats (VNTR'S) in DNA molecule are highly useful in

- Stem cell culture
- DNA Finger printing
- Monoclonal antibody production
- Recombinant DNA technology

**Question No.86**

4.00

Bookmark

Which one of the following statement concerning the length of carbon-carbon single covalent bond is true?

- The carbon-carbon single bond is shorter than carbon-carbon double bond
- The carbon-carbon single bond is same as carbon-carbon double and carbon-carbon triple bonds
- The carbon-carbon single bond is longer than either the carbon-carbon double or the carbon-carbon triple bonds
- The carbon-carbon single bond is shorter than the carbon-carbon double bond and longer than the carbon-carbon triple bonds

**Question No.87**

4.00

Bookmark

In double helix of DNA, the two strands are –

- Coiled over each other without any support
- Coiled around common axis
- Coiled around the line of protein fibre
- Separated by from other by protein sheath

**Question No.88**

4.00

Bookmark

Convert the Hexadecimal number 100 to Octal number

- 400
- 100
- 10000000
- 256

**Question No.89**

4.00

Bookmark

Which programming languages are classified as low-level languages?

- Assembly languages
- C, C++
- Prolog
- BASIC, COBOL, FORTRAN

**Question No.90**

4.00

Bookmark

The technique of transfer of DNA molecules separated by gel electrophoresis to the nitrocellulose or nylon membrane is called

- Western blotting
- Eastern blotting
- Northern blotting
- Southern blotting

**Question No.91**

4.00

Bookmark

Test cross involves

- Crossing between the F1 hybrid with a double recessive genotype
- Crossing between two genotypes with dominant trait
- Crossing between the F1 hybrids
- Crossing between two genotypes with recessive trait

Question No.92

4.00

Bookmark

Which one of the following symbol is used as a statement terminator in a C program?

- Full stop (.)
- Semicolon (;)
- Comma (,)
- Colon (:)

Question No.93

4.00

Bookmark

What do you call the distance traveled by light as it passes through a cuvette?

- The field length
- The sample width
- The path length
- The focal length

Question No.94

4.00

Bookmark

Choose the best antonym of the italicized word.

The deliberate *suavity* of Olaf's behavior made the emotions of the audience volatile.

- stupidity
- pleasantness
- politeness
- impetuosity

Question No.95

4.00

Bookmark

Which are the following aqueous fluids close to neutral pH?

- Tomato juice, Lemon juice
- Household bleach, Household Ammonia
- Human blood, Tears
- Egg white, Seawater

Question No.96

4.00

Bookmark

Which are the amino acids contains sulfur?

- Cysteine, and Methionine
- Glutamic acid and Aspartic Acid
- Phenylalanine, Tryptophan, and Tyrosine
- Asparagine, Serine, Threonine, and Glutamine

Question No.97

4.00

Bookmark

EC Chips used in computers are made up of

- Lead
- Chromium
- Silicon
- Silver

Question No.98

4.00

Bookmark

Eukaryotic cells and their organelles are disrupted by sonication. The centrifuge is used to separate soluble and insoluble components. Protein X is found in the insoluble fraction following centrifugation. The insoluble fraction is treated with 0.5M NaCl and centrifugation is repeated protein X is now found in the soluble fraction. Protein X would be best described as:

- A soluble nuclear protein
- An integral plasma membrane protein
- An integral membrane protein in an organelle
- A peripheral membrane protein

Question No.99

4.00

Bookmark

What are the eigenvalues of the following matrix?

$$\begin{pmatrix} 1 & 2 \\ 2 & 1 \end{pmatrix}$$

- 3,-1

- 3,3
- $1+2i, 1-2i$
- $-1+1.4i, -1-1.4i$

**Question No.100**

4.00

Bookmark

Among the following which one is good conductor for electrical wiring

- Silicon
- Iron
- Carbon
- Copper