

Section 1 - Section 1**Question No.1**

4.00

Bookmark

pBluescript is an example for

- Bacterial vectors
- Phagemid
- Cosmid
- Plasmid

Question No.2

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In a time-of-flight mass spectrometer, the velocity v of an accelerated ion is related to its mass by which of the following?

- inversely proportional to the square root of its mass
- inversely proportional to its mass
- proportional to m (its mass)
- proportional to the square root of its mass

Question No.3

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How is the preliminary sequence collected?

- By using high throughput sequencing
- By Sanger method
- By performing Polymerase chain reaction
- By using a computer program

Question No.4

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Enzymatic and no-enzymatic molecules used in MS

- Trypsin
- CNBr
- Chymotrypsin
- All of these

Question No.5

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Which of the following operations or calculations would generally be carried out using molecular mechanics?

- Energy minimization
- Molecular orbital energies
- Transition-state geometries
- Electrostatic potentials

Question No.6

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How many triplets can be formed from four ribonucleotides A, U, G, and C containing one or more adenine?

- 54
- 27
- 37
- 64

Question No.7

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Bookmark

The amyloid protein deposition associated with Alzheimer's disease is composed of

- Beta pleated sheets
- Beta bends
- Alpha helix
- Tertiary structure

Question No.8

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Bookmark

Choose the correct meaning of the italicized idiom.

When Peter left he was extremely disappointed. I think he has *gone for good*.

- To seek good fortune
- Permanently
- To a good place
- To a foreign country

Question No.9

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Once the sequences are obtained from your Next Generation Sequencing experiment, what is the first thing you should do?

- Checking and verifying the obtained data using another method
- Performing bioinformatics and analyzing data
- Publishing the results in a decent journal
- All of the above

Question No.10

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Bookmark

Specifically cleaves polypeptides on the carboxyl side of methionine residues

- Iodoacetamide
- Chymotrypsin
- Cyanogen bromide
- Phenylglyoxa

Question No.11

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Bookmark

500kDa size macromolecule ionized in

- Electron impact
- MALDI
- ESI
- FAB

Question No.12

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Bookmark

Order the given molecules CHF_3 , CH_2F_2 , CH_3F based on the chemical shift.

- $\text{CH}_2\text{F}_2 < \text{CHF}_3 < \text{CH}_3\text{F}$
- $\text{CHF}_3 > \text{CH}_2\text{F}_2 > \text{CH}_3\text{F}$
- $\text{CHF}_3 < \text{CH}_2\text{F}_2 < \text{CH}_3\text{F}$
- $\text{CH}_2\text{F}_2 > \text{CHF}_3 > \text{CH}_3\text{F}$

Question No.13

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Sweetest sugar is

- Mannose
- Lactose
- Glucose
- Fructose

Question No.14

4.00

Bookmark

Which device is used to measure the wavelength of X-rays?

- Manometer
- SWR meter
- Framing square
- Spectrometer

Question No.15

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Bookmark

The KDEL sequence, found on luminal proteins of the ER, is responsible for

- Quality control in the ER
- Translocation of proteins into the ER lumen
- Retrieval of ER luminal proteins from the Golgi
- Insertion of proteins into the membrane of the ER

Question No.16

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Bookmark

To be evolutionary successful mutation must takes place in

- Endoplasmic reticulum
- Gametic cells
- Somatic cell
- Plasma protein

Question No.17

4.00

Bookmark

Primer design tools

- Primer3
- WebPrimer
- GeneFisher
- All of these

Question No.18

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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

On which day there is no lecture?

- Wednesday
- Tuesday
- Sunday
- Monday

Question No.19

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Bookmark

When a eukaryotic gene is transcribed from DNA into RNA,

- Introns are copied
- Exons are copied
- Multiple proteins are produced
- Both exons and introns are copied

Question No.20

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Bookmark

Psychologist : Neurosis

- Opthamologist : Catract
- Oncologist: Measles
- Dermatologist: Sprain
- Kids : Pediatrician

Question No.21

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One day, Ravi walked a distance of 75 metres towards the north. Then he turned left and walked for about 25 metres, he turned left again and walked 80 metres. Finally, he turned to the right at an angle of 45° . In which direction was he moving finally?

- North-west
- South-west
- South-east
- North-east

Question No.22

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Methods involved in gene expression analysis

- Serial analysis of gene expression
- Both a and b
- Differential display
- Amount of DNA/RNA

Question No.23

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Bookmark

How many base pairs are there in one full turn of the DNA double helix?

- 10
- 16
- 64
- 4

Question No.24

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In any given sequence of one DNA molecule, what chemical group is usually found on the 5' end?

- Phosphate
- Hydroxyl
- Nucleotide
- Ribose

Question No.25

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Assuming that the histone octamer forms a cylinder 9 nm in diameter and 5 nm in height and that the human genome forms 32 million nucleosomes, what volume of the nucleus (6 mm indiameter) is occupied by histone octamers? (Take a volume of the cylinder is $\pi r^2 h$ & volume of a sphere is $\frac{4}{3} \pi r^3$)

- $1.13 \times 10^{11} \text{nm}^3$
- $1.102 \times 10^{10} \text{nm}^3$
- $1.13 \times 10^{10} \text{nm}^3$
- $1.102 \times 10^{11} \text{nm}^3$

Question No.26

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SNP, which alter the amino acid sequence of protein is

- Synonymous
- Nonsynonymous
- Both a & b
- None of these

Question No.27

4.00

Bookmark

An internal structure of fixed cells are best viewed using

- Transmission Electron Microscopy
- Differential Interface Phase Contrast Microscopy
- Atomic Force Microscopy
- Phase Contrast Microscopy

Question No.28

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It is important to realize that the ties that bind us together in common activity are so _____ that they can disappear at any moment.

- restrictive
- tentative
- tenacious
- tenuous

Question No.29

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What is the strength of the hydrogen bond equivalent to covalent bond?

- 1/20
- 1/40
- 1/10
- 1/30

Question No.30

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Components which have small value of K have affinity for

- Stationary phase
- Solution phase
- Gas phase
- Mobile phase

Question No.31

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Bookmark

Certain NMR parameters are measured for the study of protein dynamics. Which of the following parameters is not measured for the protein dynamics?

- $^{15}\text{H}-^{15}\text{H}$ NOE
- $^{15}\text{N}_1$ relaxation rate
- $^{15}\text{N}_2$ relaxation rate
- $^{15}\text{H}+^{15}\text{H}$ NOE

Question No.32

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Bookmark

Pharmacogenetics is

- Study of the effect of variation in two genes
- Study of the effect of variation in multiple genes
- Study of the effect of variation on the entire genome
- Study of the effect of variation in a single gene

Question No.33

4.00

Bookmark

Which one of the following codons serve as stop signals in the production of amino acids?

- UAU, UAC
- UGU, UGC
- UUU, UUC
- UAA, UAG

Question No.34

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Which one comes under Gene Expression Data?

- Genomic sequence
- Microarray
- Protein sequence
- Protein sequence patterns and motif

Question No.35

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Statements: Stories are True, All true incidents are rumours.

Conclusion:

I. Stories are rumours.

II. Rumours are stories

- If either I or II follows
- If neither I nor II follows
- If only conclusion I follows
- If only conclusion II follows

Question No.36

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GOBASE is a database of the genome of

- C. elegans*
- Fruit fly
- Mitochondria
- all organism

Question No.37

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Bookmark

At a time a single water molecule can form how many number of hydrogen bonds with other water molecules

- 2
- 3
- 4
- 1

Question No.38

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Which one of the following is commonly used cloning vector?

- pUC vectors
- pSC 101
- pBR 322
- pUC19

Question No.39

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Bookmark

What is the energy of a photon of wavelength 355 nm?

- 5.596×10^{21} J
- 5.596×10^{17} J
- 5.596×10^{27} J
- 5.596×10^{19} J

Question No.40

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Bookmark

Let us consider a bacteria are growing in the presence of a poison such as an antibiotic, most cells grow and proliferate slowly. What may be the possibility, to restore its original growth after a few days?

- There is no chance to restore, and the cells entered into programmed cell death
- Bacteria continually acquire mutations in their DNA and become resistant to poison
- Due to an elevation of cytosolic free calcium concentration, apoptosis will occur in both physiological and pathological conditions
- Due to poison, endonuclease produces oligonucleosome DNA fragments; this will directly lead to cell death

Question No.41

4.00

Bookmark

In a mixture of the four proteins listed below, which should elute second in gel filtration chromatography?

- Ribonuclease A
Mr = 13,700
- RNA polymerase
Mr = 450,000
- Serum albumin
Mr = 68,500
- Immunoglobulin G
Mr = 145,000

Question No.42

4.00

Bookmark

Choose the correct meaning of the italicized idiom.

Raju has a very nice manner, but you would better take what he says *with a grain of salt*.

- To criticize
- To talk sensibly
- To listen to something with considerable doubt
- To complement

Question No.43

4.00

Bookmark

Resolving power in MS is defined as

- $\Delta M/M$
- $\Delta M/Z$
- $\Delta Z/M$
- None of these

Question No.44

4.00

Bookmark

All of the following processes occur in the pathway leading to regulated protein secretion in animal cells EXCEPT

- phosphorylation of a mannose residue in a glycoprotein
- synthesis of an amino-terminal signal sequence
- an increase in the concentration of cytosolic calcium ions prior to secretion
- formation of transport vesicles from the rough endoplasmic reticulum

Question No.45

4.00

Bookmark

Disulphide bonds are formed between

- Serine residues that are close together
- Proline residues that are close together
- Valine residues that are close together
- Cysteine residues that are close together

Question No.46

4.00

Bookmark

Object can be magnified under electron microscope about

- 300, 000 times
- 250, 000 times
- 450, 000 times
- 350, 000 times

Question No.47

4.00

Bookmark

In agarose gel electrophoresis, DNA is moved towards the

- Anode
- Cathode
- DNA doesn't move
- Moves slowly

Question No.48

4.00

Bookmark

What is a better criterion to measure the accuracy of the calculated structure

- Quality factor of NOE intensity
- Total number of distance violations
- Quality factor of residual dipolar couplings
- RMSD of backbone atoms

Question No.49

4.00

Bookmark

In the sequence alignment, the significance of the entire alignment generally depend on the

- Length of the total alignment
- Number of matching residues
- Number of consecutive matching residues
- All of the above

Question No.50

4.00

Bookmark

Following is not the example of tests.

- Chi test
- t-test
- pie test
- F-test

Question No.51

4.00

Bookmark

How many ATP molecules could maximally be generated from one molecule of glucose, if the complete oxidation of 1 mole of glucose to CO_2 and H_2O yields 686 kcal of free energy and the useful chemical energy available in the high-energy phosphate bond of 1 mole of ATP is 12 kcal?

- 12
- 54
- 57
- 27

Question No.52

4.00

Bookmark

What TCP/IP protocol is used for remote terminal connection service?

- RARP
- FTP
- UDP
- TELNET

Question No.53

4.00

Bookmark

On which of the following molecules would you find an anticodon?

- mRNA
- rRNA
- tRNA
- siRNA

Question No.54

4.00

Bookmark

If the wavelength of light is 550 nm and an oil immersion objective with an NA of 1.45 is used, what is the resolution limit?

- 190 nm
- 100 nm
- 550 nm
- 400 nm

Question No.55

4.00

Bookmark

A model in systems biology is usually not

- Valid under all conceivable environmental conditions
- Simplified
- The central element of systems biology research
- A Mathematical representation of biological processes

Question No.56

4.00

Bookmark

What type of enzyme is used in recombinant DNA technology to split a specific sugar phosphate bond in each strand of a DNA double helix?

- Glycosidase
- Lipase
- Restriction enzyme
- Ligase

Question No.57

4.00

Bookmark

Which one can manifest in a higher risk of cancer and may affect mRNA structure and disease susceptibility

- SNP in coding region
- SNP in noncoding region
- SNP in tRNA
- None of these

Question No.58

4.00

Bookmark

Erwin Chargaff rule is

- A=C G=T
- A+G = T+C
- A=G C=T
- A+T = G+C

Question No.59

4.00

Bookmark

What is the value of the chemical shift of a peak that occurs 555.8 Hz downfield of TMS on a spectrum recorded using 90 MHz NMR spectrometer?

- 0.0062 ppm
- 6.0 ppm
- 0.16 ppm
- 6.18 ppm

Question No.60

4.00

Bookmark

A-helix has

- 3.4 amino acid residues/turn
- 3.0 amino acid residues/turn
- 3.8 amino acid residues/turn
- 3.6 amino acid residues/turn

Question No.61

4.00

Bookmark

The general expression for the appearance of a solute in an effluent is

- $V = V_0 - k_D V_i$
- $V = V_0 V_i$
- $V = V_0 + k_D V_i$
- $V/V_0 = k_D V_i$

Question No.62

4.00

Bookmark

Waves associated with electrons are referred to as

- Gamma waves
- UV waves
- Plasma waves
- Matter waves

Question No.63

4.00

Bookmark

How many grams of NaCl are required to prepare 100 ml of a solution of 2 M NaCl?

- 58.44 grams
- 2.92 grams
- 29.20 grams
- 5.84 grams

Question No.64

4.00

Bookmark

Proteins that keep other proteins in an unfolded configuration or help them fold properly

- Kinase
- Nuclease
- Chaperones
- Phosphatase

Question No.65

4.00

Bookmark

Choose the antonym of the italicized word.

The habit of *squandering* money should not be encouraged.

- collecting
- hoarding
- saving
- discarding

Question No.66

4.00

Bookmark

Restriction enzyme selection

- Both a & b
- BEN Cutter
- GeneFisher
- NEB Cutter

Question No.67

4.00

Bookmark

Which of the following terms applies to the amount of drug required to produce a defined biological effect?

- Potency
- Stability
- Affinity
- Efficacy

Question No.68

4.00

Bookmark

Chromatin is composed of

- DNA and Proteins
- DNA
- Protein
- Protein, DNA and RNA

Question No.69

4.00

Bookmark

Selective retrieval of cell-surface proteins for recycling or degradation is

- Endocytosis
- Phagocytosis
- Transcytosis
- Exocytosis

Question No.70

4.00

Bookmark

_____ she had been lied to, Sally got really angry.

- If Sally discovered
- Sally when discovered
- Having discovered
- Sally discovered

Question No.71

4.00

Bookmark

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

P, Q, R, S T went on a picnic. P is son of Q but Q is not the father of P. R is the son of S, who is the brother of P. T is the wife of S.

How many males are present in the group?

- 3
- 2
- 4
- 1

Question No.72

4.00

Bookmark

Which of the following software program is used for automated de novo drug design?

- CHEM3D
- DOCK
- LUDI
- CoMFA

Question No.73

4.00

Bookmark

Which of the following architecture is essential for a super computer

- multiple channel
- Bus architecture
- Single user
- Vector processing

Question No.74

4.00

Bookmark

The most prevalent drug-metabolizing enzymes (DME)

- VKORC1
- TPMT
- GSH
- Cytochrome P450s

Question No.75

4.00

Bookmark

Statement: Opening a Library in Achupatti will be a wastage.

Assumptions:

I. Inhabitants of Achupatti are illiterate.

II. Inhabitants of Achupatti are not interested in reading

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

Question No.76

4.00

Bookmark

Reusability is a desirable feature of a language as it

- decreases the testing time
- lowers the maintenance cost
- reduces the compilation time
- Both (a) and (b)

Question No.77

4.00

Bookmark

A compact disc stores about 4.8×10^9 bits of information in a 96 cm^2 area. If the information is stored as a binary code (either 0 or 1), how many compact discs are needed to store the information contained in the human genome (3×10^9 nucleotide pairs)?

- 20
- 2
- 200
- Not possible to store in CDs, due to the massive volume of the genomic information

Question No.78

4.00

Bookmark

Which one of the following scoring matrices is most appropriate to align two sequences that are about 37% identical?

- PAM30
- PAM70
- PAM120
- PAM250

Question No.79

4.00

Bookmark

The research participants are described in detail in which section of the research plan?

- Discussion
- Method
- Data analysis
- Introduction

Question No.80

4.00

Bookmark

Epistasis:

- The effect of one gene being independent
- The effect of one gene being dependent on the presence of one or more 'modifier genes'
- The effect of one gene being dependent on the presence of only one 'modifier genes'
- All of these

Question No.81

4.00

Bookmark

Which one of the following statement is wrong?

- All the statements are right
- Water is a good solvent for Raman spectra of water-soluble compounds
- Water is a good solvent for recording UV spectra of water-soluble compounds
- Water is a good solvent for IR spectra of water-soluble compounds

Question No.82

4.00

Bookmark

Which disease is associated with nonsense point mutation

- Cystic fibrosis
- Mandibuloacral dysplasia
- Progeria syndrome
- All of these

Question No.83

4.00

Bookmark

According to your text, which of the following is not a source of research ideas?

- All of the above ARE sources of research ideas
- Practical issues
- Past research
- Theory

Question No.84

4.00

Bookmark

Separation of ions in MS based on

- z/m
- m/e
- e/m
- m/z

Question No.85

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'.

How many lanes are there between 'Lie lane' and 'Devotion lane'?

- two
- four
- three
- five

Question No.86

4.00

Bookmark

Dad often comes home late these days, _____?

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

Question No.87

4.00

Bookmark

In three-dimensional structure determination, the advantage of NMR over X-ray crystallographic method involves

- Single protein models with clear secondary structures including loops
- Experimenting using large protein targets
- Short data collection and faster structural process
- Performing experiments using aqueous solution close to the physiological environment

Question No.88

4.00

Bookmark

Which one of the following is not a type of research question?

- Developing good practice
- A hypothesis
- Evaluating a phenomenon
- Predicting an outcome

Question No.89

4.00

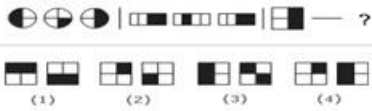
Bookmark

Find the odd one out?

- Circle : Arc
- Cover : Page
- Chair : Arm
- Flower : Petal

Question No.90

4.00

Bookmark 

- 2
- 1
- 3
- 4

Question No.91

4.00

Bookmark

book : _____ : : comb : tooth

- Title
- Cover
- Page
- Knowledge

Question No.92

4.00

Bookmark

Which would be best to separate a protein that binds strongly to its substrate.

- Gel filtration
- Cation exchange
- Affinity chromatography
- Anion exchange

Question No.93

4.00

Bookmark

Which of the following statements is true?

- The active conformation can be determined by conformational analysis.
- The most stable conformation of a drug is also the active conformation.
- The active conformation is the most reactive conformation of a structure.
- The active conformation is the conformation adopted by a drug when it binds to its target binding site.

Question No.94

4.00

Bookmark

Choose the best synonym of the italicized word.

Nobody knew that Sunil had a *sinister* design in marrying her.

- sinful
- selfish
- evil
- murderous

Question No.95

4.00

Bookmark

Choose the correct meaning of the italicized idiom.

The party in power *came down* on the side of a flexible and early economic policy to help the weaker sections.

- Decide to support
- Decide to go to the corner
- Decide to speak secretly
- Decide to rebuke severely

Question No.96

4.00

Bookmark

An accurate mass measurement on a molecular ion peak gives the value of 72.0583. Identify the appropriate formula as one of the following.

- $C_2H_4N_2O$
- $C_3H_8N_2$
- C_4H_8O
- $C_3H_4O_3$

Question No.97

4.00

Bookmark

For a centrosymmetric crystal structure, all diffracted X-ray beams have phases of either 0 or 180, and other phase values do not occur. What effect does this have on reverse Fourier transform calculations?

- The complex exponentials become cosines due to the sine terms multiplied by the imaginary number are all zero
- The different phase contributions can be ignored
- The terms containing $(hx + ky + lz)$ are all equal
- Due to the symmetry, half of the reflections make no contribution

Question No.98

4.00

Bookmark

Analysis of a sample of DNA found that 20% of the bases were adenine. What percentage of the bases would be pyrimidines?

- 20%
- 40%
- 30%
- 50%

Question No.99

4.00

Bookmark

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

Professor : Erudite

- Mason : Architecture
- Inventor : Imaginative
- Entrepreneur : Hardwork
- Carpenter : Furniture

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.

Who is the Chartered Accountant?

- Manisha
- Vimal
- Nyna
- None of these