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Q3 a) The function of TaQ Polymerase) is to produced multiple copies of DNA in PCR. we used TaQ Polymerase because of heat tolerent So it can work at high temprature.

b) loading dyes is mixed with DNA Semples for used in gel electrophoresis dyes generally Show us how fast our gel is runing.
→while agarose gel Separate DNA fragment at a Spacific Size.

c) primary Antibody.
it is antibody which is directly attached or bind to the antigen the region of primary antibody recogni'ze the epitope on the antigen.

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Secondry antibody:
It bind with the primary antibody to help in detection. Sorting and purification of target antigens (primary and Secondary both are added in Indirect Elisa)

D) Blotting Papar in used in Southern blotting for finding the Spacific DNA fragment.

OR:

It is hybridization techniqe for the identification of Spacific nucleic acid and gene and it is mainly used during different Stages of gene expression (DNA, RNA)

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Q2 (a) (1) The diagnosis of Corona virus occurs through a Special PCR known as RT-PCR.

It is a nuclear derived technique through which the Corona virus can be found in even a Small Sample from the patient and it allows for the rapid detection which is vital to limet the Spread of Corona virus. Orignally in this method radioactive Isotope markers are used to detect genetic materials. more frequently florescence dyes are used now a days.

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② Specimens Collection from throat, nasal nasopharyngeal, Sputom and bronchial fluids.

R.T-PCR are used in expression profiling to determine the expression of gene it is also to identify the Sequance of RNA transcript including transcription Start and termination Sites.

Q2 ⓑ R.T-PCR can be carried out by one Step R.T-PCR protocols or two Step R.T-PCR protocols.

1) One Step R.T-PCR take mRNA targets and Subjects them to reverse transcription and then PCR amplification in a Single test tube.

2) Two Step R.T PCR as the name implies occur in two Step first the reverse transcription and then the PCR.

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Q7 ⓒ Use:-

① Nas mask. ② lab coat.
③ Hand washing facilities Such as Sanitizers.
④ Gloves.
⑤ Avoid to touch face nose eyes during expirment.
⑥ protection of eyes from lab goggles.
⑦ head cover. ⑧ Foot wear.
⑨ Wastes should be throwm dustbin or bin.
⑩ Avoid eating or drinking. Smoking were the expirement occur.

Procedure:-

An procedure should be performed in the way that minimizes the formation of aerosols and droplets.
-mouth pipetting must be Strictly prohibeted.
• All these infectious items which can cause splahes, droplets.
• use of BCs mainly (class II BCs.).

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Q1 (a) 1) Most people are diagnosed with CML through blood test known as CBC Complete blood count.

→ CBC is done for a regular checkup and in CML it is used for WBCs finding because CML patients have high number of WBCs. platlets counts

2) Bone marrow aspiration and biopsy. its is a process or procedure in which a hollow needle is inserted in the hip bone and reached that needle into bone marrow and collect a sample for the diagnosed of CML.

3) A CT scan show if any lymph node in your ~~body~~ body become enlarged.

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(3,4) MRI is mainly used for brain and Spinal card.

(5) PCR in CML is used to look for the BCR-ABL genes in leukimia cell.

(6) Fish test is used for chromosal Study (BCR-ABL)

(7) Genetic test.

(8) Blood chemistry test

(9) Bone marrow test.

(10) Imaging test which is not usually needed. But Some time nessecary for your liver picture.

(11) Biochemical finding.

→ Q1 (b) The main cause of CML is unknown but it is believed that it is caused from the genetic mutation. During the swapping of DNA between the chromosome (22 and 9) lead the formation of genes which is known as BCR-ABL.

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How this gene produced a Specific proteins called Tyrosine, kinase, this proteins cause cml cells to grow and deride it out of control as a results of cml occur.

→ Q1 (c) philadelphia occur due to the translucation of chromosome 22 and 9 respectivaly So it mean that it is mutation which only occurs due to normals chromosomes which is not. Inheretable but a small amount of BCR-ABL oncogen are present in cml patients which may or may not inhereted to their child or offspring. Supply we can say that it is a Somatic mutation which is not inheredable to ~~opp~~ offspring.