**Final-Term Exam 2020**

**IQRA NATIONAL UNIVERSITY**

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**ALLIED HEALTH SCIENCE**

(MLT 6th)

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**Q1. Define the following terms.**

1. **PH Meter**
2. **Vortex Mixer**
3. **Balance**
4. **Water still**
5. **Deionizer**

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| **Vortex Mixer** | **Balance** | **PH Meter** | **Water still** | **Deionizer**  |
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| it is also called vortexes is sample device used commonly is laboratories to mix small vials of liquid. This device was first present in 1960s by Kraft. It can consist of an electric motor with the drive shaft oriented vertically and attached to a copped rubber piece mounted slightly off center.it is used in the research laboratories for the mix of small sample of liquid rapidly.  | A weighing scale is a device for measuring weight. Balance measure the mass of an object and are used in science.An even the distribution of weight enabling someone or sometime to remain upright and steady. Its means the physical equilibrium.  | First described by American chemist aroid a Beckman in 1934.The PH meter is responsive electrode and reference electrode is usually in glass, it contain usually mercury and mercuries chloride  |  It is instrument used in laboratory for purification of water and water skill by first heating water until it turns into steam in tubes or on a glass plate and finally condensing the stem into new purified water droplets that can be collected in clean vessel.. It work on principle of dislocation. | It is a device used in a laboratory bye which both positively charged and negatively charged (cations and anions) are removed from water. Ions in aqueous solutions are exchange for the elements of water by pass the solutions through the mixed resin.  |
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**Q2:-Describe Electrophoresis and its importance?**

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| **Electrophoresis** | **Defilation** | **History** | **Important** |
| Term elect mean Migration with electricity. Nucleic electrophosis is attained particular. It contains uniform electric field.it is used the separation of molecule on the base of size, density and some other things.  | Electrophoresis is the study of Movement of charged particles in electric field.(OR)It is the term used to described the motions of particles in gel or fluid. | The name of ELECTROPHORESIS was coined by DR. Michalis almost 100 years’. TERM: The term ELECTROPHORESIS means migration with electricity or Migration of charge particles under the influence of electricity. | 1: - It is used in DNA fingerprinting.2:-It is Also used in peternity testing.3:-In Forensic study.4: -Very useful in genetic and study of molecular biology.5: - Commonly used in DNA sequencing.7: -Purification and analysis of vaccine.8: - Very useful in Genetic and molecule biology.. |

**Q3:- Explain Autoclave, its uses, and components?**

**Autoclave: -**

Autoclave Is a pressurized device designed to heat aqueous solution above to heat aqueous solution above their boiling point in normal atmospheric pressure to achieve sterilization. Auto clave is pressure chamber used for the sterilization is also termed as sterilization. The instrumentation is also termed as sterilizer.

 **Basic means: -**

Auto ---- self

Clave --- self locking

**History: -**

The instrument was first developed in its crowd by DR Denis pain in 1676 and named it as a stream digester. The stream digesters were the for runner of the laboratory Auto clave invented in 1879 by DR Charles while working with Louis pasture.

**Compouments: -**There are following Components of autoclave**.**

**1: -Chamber**

**2: - Control Panel**

**3: - Air Pump system**

**4: - pressure gauge**

**5: - Pressure knob**

**6: - Safety Handle**

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| **Chamber** | **Control Panel** | **Air Pump system** | **Pressure gauge** | **Pressure knob** | **Safety Handle** |
| It is a place where the item to be sterilized. The chamber consists of racks to hold article and allow for steam penetration from all angles. | Allow the control over the Auto clave process. Without control penal the autoclave procedure cannot complete it means that it must be present in the autoclave.  | this is required to remove the air in the Chamber and create the vacuumed, steam generated by boiling The water. If the air is present in the autoclave so the procedure is not complete. | This is the gauge on which the Pressure s shown PSI. It is like sphygnomen meter. It’s also control the pressure in the autoclave. | sample knob used to discharge the Pressure after discreet time and temperature is attached. | This is attached to safety lid. Make give you safety.  |

**Uses of autoclave**

Used as a surgical instrument.

Remove the micro-organism from the equipment such as (virus and bacteria) and spots using high pressure and high temperature stream sterilization.

The autoclave is equally variable for glassware and meltawire.

**Q4. What do you know about Beer Lambert law (uses, principle)?**

**Beer Lambert law**

The measurement of color intensity of colored solution by photometry is governed by two law Bears law and lambert law. This law state that the quantity of light absorbed by the substance dissolved in fully concerted of substance which are directly proportional to the construction of substance and path of light through the solutions.

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| **Beer law**  | **Lambert law** |
| The mount of light transmitted decreases exponentially with increase in path length of the cuvette or thickness of colored solution through which light passes **i.**e. the amount of light absorbed of colored solution.  | When the mono chromatic light passes thronged a colored solution amount of light transmitted decreases exponentially with increase in concentration of colored substances concentration of substance in the colored solution. |

**Uses and Principle**

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| **Uses** | **Principle** |
| Read the user manual carefully. Use the correct type of cuvette is clean and its optical surfaces are dry and free from finger marks and scratch. Bring filter in to place before switching on the colorimeter. Before reading the absorbance of a solution, check that is clear, there are no bubbles in it remove the cuvettes from the instrument. |  when a monochromatic light passes through a colored solution some specific wavelength of light absorbed which is related to color intensity the amount of light absorbed. |
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**Q5. Write a note on Flow Cytometery?**

 It is a technology used for measuring properties of cell they in field suspension in cross ion light

qualitative and quantities analysis and most commonly analyzed molecular are blood and also include bone marrow aspirate also include lymph node suspension. The characteristics are determined using an optical to electronic coupling system that detects the cell based on laser scattered by the cells. A flow cytometer, despite its name, doesn't necessarily deal with cells, it deals with cells quite often, but it can also bind with chromosomes or molecule or such other particle which can be suspended in a fluid.

**Purpose of the fluidics system is to transport the particles in a stream of fluid to laser beam where they are interrogated**

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| **1** | If cells are from solid tissue, they require disaggregation before they can be analyzed |
| **2** | Although cells from animals, plants, bacteria, yeast or algae are usually measured, other particles such as chromosomes or nuclei can also be examined.  |
| **3** | Some particles such as marine algae are naturally fluorescent, but in general, fluorescent labels are required to tag components of the particle. |
| **4** | Section of fluid stream that contains particles is referred as sample core. |