

**Q1/ Write true and false with correct the false one**

**(10 Marks)**

- 1- The electrons penetrate the sample and when these heavy metals are exist, called Mechanism of staining
- 2- Histochemical staining is used to indicate the chemical composition of the tissue or cellular elements.
- 3- Coagulation and precipitation of proteins in tissues is one Properties of the fixative
- 4- The fixation in osmium tetroxide 1% for 1hr for fixing proteins and staining of lipoproteins in the membranes called postfixation
- 5- In scanning electron microscope the samples coating by silver
- 6- Resin media is natural or synthetic resins dissolved in water
- 7- Acetone is colorless flammable liquid, freely miscible only with water, low toxicity and it is fast and effective as a dehydrant and may also act coagulant secondary fixative
- 8- An antigen is any substance that gives an immunological response, most antigens are protein from a foreign organism
- 9- In sliding microtome the knife or blade is stationary and the specimen slides under it during sectioning.
- 10- In Histochemical Methods, the presence of calcium deposits can be detect by Perls's Reaction.

**Q2/ Answer the following**

**(20 Marks)**

- 1-Write about Freezing Microtome
- 2-Why the direct method is less used compared to the other methods.
- 3-Mention the types of sections according to use and thickness and staining thick sections.
- 4-Prepare Carnoy's fixatives.
- 5-Explain the differences between non- Sectioning methods

**Q1/ Write true and falls with correct the falls one**  
**Marks)**

**(10**

- 1- Maceration is used for soft samples, which study the internal structures of the samples and their relations.
- 2- The fixation consists of one step is killing.
- 3- Micro-techniques is various methods of preparing materials for light and electron microscopic observation and study.
- 4- Aqueous media are used for mounting sections from alcohol 70%.
- 5-The factors effect on fixation only volume of the samples.
- 6- Embedding is produce the blocks of tissue for section cutting by microtome.
- 7- Rotary Microtome is the basic mechanism requires the rotation of a fine advance hand-wheel by 350°  
degrees

- 8- Natural dyes are very few in numbers such as eosin.
- 9- The thickness section that prepare by Sledge microtome is 1-60mm.
- 10- Celloidin Technique is not time-consuming.

**Q2/ Write about the following**

**(20**

**Marks)**

- 1- Write about types of fixation.
- 2- What is the different between mountants and mordants.
- 3- Mention the advantages of celloidin technique.
- 4- Write about Toluidine blue.
- 5- Explain the Ultra- Microtome.

**Q3/ Fill the blanks with suitable words**

**(20**

**Marks)**

- 1- ----- staining the structures in living cells, either in the body or in a laboratory preparation
- 2- 10% Buffered Formalin composed of -----, -----, ----- and -----.
- 3- ----- the knife or blade is stationary and the specimen slides under it during sectioning.
- 4- It is mixed with water and most organic solvent and fully miscible with molten paraffin wax, less severe than ethanol and can used as a xylene substitute, such as -----.
- 5- ----- it dissolved in xylene as a 20% solution. It is most commonly used
- 6- The histological specimen can be prepared by different methods are -----, -----, -----, ----- and -----.
- 7- It use a variety of dyes and techniques to stain particular tissues, structures or pathogens to assist pathologists with tissue based diagnosis called -----.
- 8- The Principle of fixation consists of -----, ----- and -----.
- 9- For making the paraffin block must be used ----- and -----.
- 10- ----- It is gentle and rapid then xylene and toluene, it's used in histology. Disadvantages are the same as of alcohol.

**Q1/ Write true and falls with correct the falls one**

**(20 Marks)**

- 5- Maceration is used for soft samples, that being by preparing a wet mount.
- 6- The fixation of the transmission electron microscope using 2-4% glutaraldehyde in 0.1M cacodylate buffer, pH 7.2-7.4, at 4°C.
- 7- Necropsy is an examination of tissue removed from a dead body to discover the presence, cause, or extent of a disease.
- 8- Through Scanning electron microscope preparation the sample ultimately dried and were mounted on the stub and no coated.
- 9- Micro-techniques is various methods of preparing materials for light and electron microscopic observation and study.
- 10- Aqueous media are used for mounting sections from alcohol 70%.
- 11- Direct immunohistochemical methods are generally one step and involve the use of indirectly labelled antibodies to detect antigens of interest within the tissue.
- 12- Lipid staining is technique that dependent on dyes that are insoluble in lipids
- 13- Osmic acid is used for fixation of fatty tissues and muscles.
- 10- The best thickness for EM is 600-900Å.
- 11- The factors effect on fixation only volume of the samples.
- 12- Diethylene dioxides is non-miscible with paraffin, water and alcohol
- 13- Embedding is produce the blocks of tissue for section cutting by microtome.
- 14- Rotary Microtome is instrument is one of the oldest in design, relatively cheap, and is exclusively designed for sectioning paraffin blocks.
- 15- Perls's reaction method is particularly important for the detection of iron levels such as potassium ions.
- 16- Formal calcium is useful for demonstration of phospholipids. Fixation time 72 hours at room Temperature.
- 17- Natural dyes are very few in numbers such as eosin.
- 18- The thickness section that prepare by Sled microtome is 1-60mm.
- 19- Trichloroethanol is commonly used as terpenes substitute.
- 20- Von Kossa Technique is a more sensitive technique that can be used to identify the presence of calcium deposits.

**Q2/ Write about the following**

**(20**

**Marks)**

- 1- Compare between Gomori's Trichrome Blue and Gomori's Trichrome Green.
- 2- What means PAS reaction? Explain.
- 3- Mention the non-sectioning methods with explain on of them.
- 4- Write about types of fixation.

**Q3/ Answer the following**

**(10**

**Marks)**

- 1- What is the different between mountants and mordants.
- 2- Mention the differences between indirect and sandwich Immunohistochemical methods  
(only by figure)