

Exam for MSC Degree in:
Histology & Cell Biology
Second Semester
Code : HIST8002
Course Title: Histology
Date: 20/2/2018



Tanta University
Faculty of Medicine
Histology & Cell Biolo
Department
Time allowed: 3 Hour
Total Marks: 45

Histology MSC exam, 2nd semester
Histology MSC exam, 2nd semester

Answer all the following questions:

1. Define the followings: (5 Marks 1mark each)
 - A. Progressive staining.
 - B. Counter staining.
 - C. Regressive Mordants.
 - D. Differentiation.
 - E. Accelerators.
2. Enumerate types of knives used in ultramicrotome with reference to advantages and disadvantages of each one? (6 Marks)
3. Enumerate differences between light and transmission electron microscopes? (6 Marks)
4. Mention different types of fixative and discuss two types used in E/M. (6 Marks)
5. Enumerate antibodies labeling methods & describe each one in 3 points. (7 Marks)
6. Mention the following: (5 Marks)
 - A. Importance of bone fixation prior to decalcification.
 - B. Factors influencing the rate of decalcification.
7. During your work in the lab, what are the different situations that you need to use eye protection? Mention different equipments for eye protection. (5 Marks)
8. Mention 5 common technical causes of a poor blood smear. (5 Marks)

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Choose the best correct answer:

1. **Cross linking fixatives in E/M act through which one of the following?**
 - a. Anchor protein to cytoskeleton
 - b. Create bonds between lipids
 - c. Transform proteins to opaque mixtures
 - d. Transform proteins to transparent gels
2. **Osmium tetroxide imparts electron density to which one of the following?**
 - a. Hexose sugar
 - b. Lipoproteins
 - c. Microtubules
 - d. Pentose sugar
3. **Which of the following can be fixed by glutaraldehyde?**
 - a. Amino groups in phospholipids
 - b. Glycoproteins
 - c. Labile enzymes
 - d. Myelin sheath
4. **Which of the following is required for adequate embedding media for TEM?**
 - a. Polymerization in reasonable time
 - b. Soluble in certain solvent
 - c. Stored in freezer
 - d. High viscosity
5. **Which one of the following size of tissue specimens is the ideal to be used for good fixation by glutreraldehyde?**
 - a. 0.25 mm
 - b. 0.5 mm
 - c. 0.75 mm
 - d. 1 mm
6. **Dissociation is one method of preparation of tissues for microscopic examination. It is of value for preparation of which of the following?**
 - a. Brain lesions
 - b. Exfoliated cells
 - c. Mixed tissue
 - d. Tissue culture
7. **Which of the following is considered the main disadvantage of the smear preparation of tissue?**
 - a. Allow less details
 - b. Cannot be preserved for long time
 - c. Cannot stained by HX &E
 - d. Loss of anatomical relationship

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8. In celloidin the processing of the tissues is performed at room temperature. So it is suitable for preparation of which of the following?
 - a. Blood
 - b. Brain and spinal cord
 - c. Nerve endings
 - d. Tissue culture
9. Prepared histological sections can be demonstrated by which of the following?
 - a. Fixation
 - b. Microscopes
 - c. Staining
10. Elective solubility can be applied to which of the following stains?
 - a. Enzyme
 - b. Fat
 - c. Impregnation
 - d. Supravital
11. Which of the following fixatives gives brilliant staining with trichrome method?
 - a. Bouin's
 - b. Carnoy's
 - c. Clark's
 - d. Formol calcium
12. Which of the following types of preparation is ideal for enzyme histochemistry?
 - a. Cryostat
 - b. Paraffin - wax
 - c. Smears
 - d. Dissociation
13. Which one of the following tissues needs a minimum time of impregnation?
 - a. Bone
 - b. C.N.S
 - c. Muscle
 - d. Skin
14. One of the following is a natural dye, what is it?
 - a. Hematoxylin
 - b. Gimsa
 - c. Toludin blue
 - d. Orang G
15. Which of the following is a polychromatic stain?
 - a. Acridine orange
 - b. Carmine
 - c. Gimsa

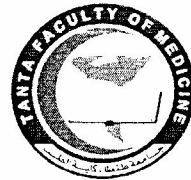
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- d. Methyl blue
16. Which type of the following staining reactions needs mordants?
- Indirect
 - Physical
 - Chemical
 - Absorptive
17. Which of the following organs can be used as positive control for alkaline phosphatase?
- Colon
 - Lymph node
 - Kidney
 - Duodenum
18. What is of the following techniques is used to demonstrate DNA?
- Feulgen reaction
 - Impregnation
 - PAS technique
19. Which of the following is suitable for cutting and stores of celloidin sections?
- Chloroform
 - Concentrated acetone
 - Dilute alcohol
 - Diluted ether
20. Which of the following is NOT included in the definition of immunohistochemistry?
- Biochemistry
 - Enzymology
 - Histology
 - Immunology
21. Which of the following is not true about the aim of immunohistochemistry?
- To perform most specific IHC staining by least time
 - To perform most specific IHC staining by least amount of Antigen
 - To perform most specific IHC staining by least background staining
 - To perform most specific IHC staining by least damage on cell or tissue
22. Which of the following is Not used as a marker in immunohistochemistry?
- Enzymes
 - Fluorescent dyes
 - Radioactive elements
 - Stains

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23. Which of the following is Not true about indirect method of immunohistochemistry?
- More background staining
 - More economic
 - More sensitive
 - More time
- 24-Which of the following is a solvent for paraffin wax?
- Alcohol
 - Formalin
 - Zylene
 - celloidin
- 25- To achieve a good microscopic preparation of liver we must rate:
- The liver must be divided
 - It must be treated as soon as possible with the fixative
 - The amount of fixative must be 15-20 times the bulk of tissue
 - All of the above
- 26- All are correct as regards precipitating fixatives EXCEPT:
- The most common precipitating fixative is formalin.
 - Act by reducing the solubility of protein molecules.
 - Alcohols are known to cause shrinkage.
 - Acetic acid is used with other precipitating fixatives.
- 27- The images produced by scanning electron microscope is characterized by being which one of the following ?
- Tow dimensional .
 - Three dimensional.
 - Fluorescent.
 - Large and sharp.
28. Which of the following fixatives is recommended when we need to preserve bone marrow?
- Buffered formalin
 - Formol ethyl alcohol
 - Zinc alcohol mixtures
 - Zinc formalin mixtures
29. Which of the following concentrations of nitric acid is used as decalcifying agent?
- 8%
 - 10%
 - 5%
 - 12%
30. Which of the following are considered as weak acids used in decalcification?

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- a. Hydrochloric acid
b. Von Ebner's solution
c. Perenyi's fluid
d. Formic acid
31. Which one of the following should be avoided during working in the lab?
a. Closed shoes
b. Contact lenses
c. Restrain hair
d. Shoes cover
32. Which of the following is appropriate during use personal protective equipment PPE in the lab?
a. It should be loose
b. It should be proper size
c. It should be tight
33. Which of the following personal protective equipment needed during using animals in your experiment to prevent animal bites?
a. Gloves
b. Hair ties
c. Lab coat
d. Shoe covers
34. Which one of the following is the most effective method to be used for decontamination purposes?
a. Autoclave
b. Douches
c. Fire extinguisher
d. Respirator
35. What is the meaning of the following sign which is present in the lab?
a. Don't enter
b. Don't touch
c. Inflammable
d. Toxic material
- 
36. What is the importance of signs and labeling for different contents in the lab?
a. Dangerous substance is the one that has no label
b. For coding the materials
c. To protect the visitors
37. How we can avoid exposure to vapors and gases that are generated during any reaction' By using:
a. Autoclave

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- b. Fume hood
- c. Laminar flow cabinet

38. Ideal temperature for housing animals ranges from:

- a. 10-15°C
- b. 15-18°C
- c. 18-26°C
- d. 20-30°C

39. Which of the following not appropriate for animals housing?

- a. Made of stainless steel
- b. Located near human
- c. Free of sharp edges and corners
- d. Suitable size for each animal

40. Adult mice consume diet about:

- a. 15gm/100 of body weight/D
- b. 25gm/100 of body body weight/D
- c. 30gm/100body weight/D
- d. 35gm/100bodyweight/D

41-Which one of the following microscopes can visualize tissues irradiated with ultraviolet light?

- a. Light microscope
- b. Phase contrast microscope
- c. Fluorescent microscope
- d. Inverted microscope

42. Which microscope is used to observe a specimen that emits light when illuminated with an ultraviolet light?

- a. Compound light microscope
- b. Dark field microscope
- c. Fluorescence microscope
- d. Phase-contrast microscope

43. Which of the following is a lens found on electron microscopes but not on light microscopes?

- a. Condenser lens
- b. Eyepiece lens
- c. Objective lens
- d. Projector lens

44. Simple staining is often necessary to improve contrast in which one of the following microscopes?

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- a. Compound light microscope
 - b. Dark field microscope
 - c. Electron microscope
 - d. Phase-contrast microscope
- 45. What structures does light pass through after leaving the condenser in a compound light microscope?**
- a. Illuminator
 - b. Objective lens
 - c. Ocular lens
 - d. Specimen

GOOD LUCK