

**APRIL 2001**

**[KD 875]**

**Sub. Code : 5016**

**B.Sc. (Medical Laboratory Technology) DEGREE  
EXAMINATION.**

**Second Year**

**Paper I — HISTOPATHOLOGY AND CYTOLOGY  
TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Answer ALL questions.**

1. (a) Describe the types of knives used in the Histopathology lab. (5)  
(b) What are the available sharpening materials and how do you sharpen the knives? (15)  
(c) Describe the automatic knife sharpener. (5)
  2. (a) What are the stains used for cytology smears. (10)  
(b) Give a detailed procedure of M.G.G. staining and its advantages on thyroid smears. (10 + 5)
  3. Write short notes on : (5 × 10 = 50)
    - (a) Fixing of bone tissue.
    - (b) Fine needle aspiration.
    - (c) Cryostat.
    - (d) Reception of specimens.
    - (e) Exfoliative cytology.
-

**DECEMBER 2001**

**[KE 875]**

**Sub. Code : 5016**

**B.Sc. (Medical Laboratory Technology) DEGREE  
EXAMINATION.**

**Second Year**

**Paper I — HISTOPATHOLOGY AND CYTOLOGY  
TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Answer ALL questions.**

1. Discuss in detail about the routine paraffin section cutting. What are the various difficulties encountered in section cutting? (25)
  2. What are the cells seen in a normal vaginal smear? Discuss the points for identification of the various types of cells. (25)
  3. Write short notes on : (5 × 10 = 50)
    - (a) PAS staining
    - (b) Frozen sections
    - (c) Fine needle aspiration cytology
    - (d) Rocking microtome
    - (e) Mounting media.
-

**APRIL 2003**

**[KI 875]**

**Sub. Code : 5016**

**B.Sc. (Medical Laboratory Technology) DEGREE  
EXAMINATION.**

**Second Year**

**Paper I — HISTO PATHOLOGY AND CYTOLOGY  
TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Answer ALL questions.**

1. Write in detail the preparation of Harris Haematoxylin. Discuss the merits and demerits of the stain. (25)
  2. Discuss about routine tissue processing and briefly about the rapid processing of tissues. (25)
  3. Write short notes on : (5 × 10 = 50)
    - (a) Decalcification.
    - (b) Metachromatic stains.
    - (c) Pap stain.
    - (d) Aspiration cytology.
    - (e) Embedding media.
-

**AUGUST 2004**

**[KL 875]**

**Sub. Code : 5016**

**B.Sc. (Medical Laboratory Technology) DEGREE  
EXAMINATION.**

**Second Year**

**Paper I — HISTOPATHOLOGY AND CYTOLOGY  
TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Sec. A & B : Two hours and  
forty minutes**

**Sec. A & B : 80 marks**

**Section C: Twenty minutes**

**Section C : 20 marks**

**Answer ALL questions.**

**SECTION A — (2 × 15 = 30 marks)**

**1. Write the technique on Frozen Section.  
Enumerate the stains for fat and lipids. (15)**

**2. Write about the preparation of cytology smears  
and on May-Grunwald-Giemsa stain. (15)**

**SECTION B — (10 × 5 = 50 marks)**

**3. Write short notes on :**

**(a) Staining of A.F.B.**

**(b) Rapid tissue processing.**

**(c) Preparation of Bouin's fluid.**

**(d) Deparaffinisation method.**

**(e) Rotary Microtome.**

**(f) Embedding substances.**

**(g) Harris haematoxylin.**

**(h) Preparation of cytology smears from body  
fluids.**

**(i) Preparation of Papanicolaou stain.**

**(j) Ripening of haematoxylin.**

**FEBRUARY 2005**

**[KM 875]**

**Sub. Code : 5016**

**B.Sc. (Medical Laboratory Technology) DEGREE  
EXAMINATION.**

**Second Year**

**Paper I — HISTOPATHOLOGY AND CYTOLOGY  
TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Sec. A & B : Two hours and  
forty minutes**

**Sec. A & B : 80 marks**

**Section C : Twenty minutes**

**Section C : 20 marks**

**Answer Sections A and B in the SAME Answer Book.**

**Answer Section C in the answer sheet provided.**

**SECTION A — (2 × 15 = 30 marks)**

1. What is Tissue Processing? Write in detail about Reception of Specimens and different stages of tissue processing. (15)

2. What is Fine needle aspiration cytology? Write about the procedure of FNAC and the preparation and staining of FNAC Smears. (15)

**SECTION B — (10 × 5 = 50 marks)**

3. Write short notes on :

- (a) Cytological stains.
- (b) Microsomes.
- (c) Embedding media.
- (d) Vaginal Smear.
- (e) Stain for Lepra Bacilli.
- (f) Microwave Ovens in tissue processing.
- (g) Mucin Stains.
- (h) Mounting media.
- (i) Regressive staining.
- (j) Formalin pigment.

**AUGUST 2005**

**[KN 875]**

**Sub. Code : 5016**

**B.Sc. (Medical Laboratory Technology) DEGREE  
EXAMINATION.**

**Second Year**

**Paper I — HISTOPATHOLOGY AND CYTOLOGY  
TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Sec. A & B : Two hours and  
forty minutes**

**Sec. A & B : 80 marks**

**Sec. C : Twenty minutes**

**Sec. C : 20 marks**

**Answer Sections A and B in the SAME Answer Book.**

**Answer Section C in the Answer Sheet provided.**

**Answer ALL questions.**

**SECTION A — (2 × 15 = 30 marks)**

**1. Write in detail the preparation of various  
haematoxiline stains. Discuss the staining technique of  
haematoxiline and eosin. (15)**

**2. Discuss in detail various embedding medias and  
write suitable embedding media for renal biopsies. (15)**

**SECTION B — (10 × 5 = 50 marks)**

**3. Write short notes on :**

- (a) Mountants
- (b) Decalcification
- (c) Zenkers fluid
- (d) Cryostat
- (e) Pap stain
- (f) Sharpening of knife
- (g) Staining procedure for "FNAC" smears.
- (h) PAS stain preparation.
- (i) 'L' Mould
- (j) Deparaffinisation.

**AUGUST 2006**

**[KP 875]**

**Sub. Code : 5016**

**B.Sc. (Medical Laboratory Technology) DEGREE  
EXAMINATION.**

**Second Year**

**Paper I — HISTOPATHOLOGY AND CYTOLOGY  
TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Descriptive : Two hours and  
forty minutes**

**Descriptive : 80 marks**

**Objective : Twenty minutes**

**Objective : 20 marks**

**Answer ALL questions.**

**Write Essays on :**

**(50)**

**1. What is fluid cytology? Write the procedure of making smears from them and the preparation and staining the smear by MGG stain.**

**(20)**

**2. Write on the preparation of frozen section and care of cryostat.**

**(15)**

**3. What is tissue processing? Write the different stages of Tissue processing.**

**(15)**

**Write short notes on :**

**(6 × 5 = 30)**

4. (a) AFB stain  
(b) Fixative used in cytology  
(c) Dehydrating agents  
(d) Melanin pigments in sections and its removal  
(e) Reception of specimen  
(f) Embedding media.
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**AUGUST 2007**

**[KR 875]**

**Sub. Code : 5016**

**B.Sc. (Medical Laboratory Technology) DEGREE  
EXAMINATION.**

**Second Year**

**Paper I — HISTOPATHOLOGY AND CYTOLOGY  
TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Descriptive : Two hours and  
forty minutes**

**Descriptive : 80 marks**

**Objective : Twenty minutes**

**Objective : 20 marks**

**Answer ALL questions.**

**I. Write essays on :**

**(2 × 15 = 30)**

**(1) Write in detail the preparation of Harris  
alum Haematoxylin. Discuss the merits and demerits of  
the stain. (15)**

**(2) What is tissue processing? Write the  
different stages of tissue processing. (15)**

**II. Short notes :**

**(10 × 5 = 50)**

**(a) Frozen sections.**

**(b) Microtomes.**

**(c) M.G.G. staining for FNAC.**

**(d) Rapid processing.**

**(e) Decalcification.**

**(f) PAS stain.**

**(g) Cleaning agents.**

**(h) Progressive staining.**

**(i) Ascitic fluid smear preparation.**

**(j) Formalin fixative preparation.**

[KT 875]

Sub. Code : 5016

B.Sc. (Medical Laboratory Technology) DEGREE  
EXAMINATION.

Second Year

Paper I — HISTOPATHOLOGY AND CYTOLOGY  
TECHNIQUES

Q.P. Code : 725016

Time : Three hours                      Maximum : 100 marks

Answer ALL questions.

I. Essays : (2 × 15 = 30)

(1) Write on various fixatives used and removal  
of formalin pigments in the section. (15)

(2) Describe the papanicolaou's staining and  
identification of cells in a normal vaginal smear. (15)

II. Write short notes on : (10 × 5 = 50)

(1) P.A.S. staining

(2) Automatic tissue processing

(3) Preparation of Formalin fixative

(4) Mounting media

(5) Cryostat

(6) Reception of specimens

(7) Hamatoxylin and eosin staining

(8) Preparation of cytology smears

(9) Routine decalcification method

(10) Mordants.

III. Short answer questions : (10 × 2 = 20)

(1) Name four fixatives

(2) Name two decalcifying agents

(3) What is exfoliative cytology? Name two  
stains used in cytology.

(4) What is meant by embedding of tissue?  
Name two embedding media.

(5) Name two acid fast bacilli. What is the stain  
used to demonstrate them?

(6) What is the composition of Bouin's fixative?

(7) Name two clearing agents.

(8) What are the types of tissue moulds?

(9) Name two mercury containing fixatives.  
Where is it used?

(10) What is Ripening of stain?

**B.Sc. (Medical Laboratory Technology) DEGREE EXAMINATION**

**SECOND YEAR**

**Paper I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES**

***Q.P. Code : 725016***

**Time : Three hours**

**Maximum : 100 marks**

**Answer All questions.**

**I. Essays :**

**(2 X 15 = 30)**

1. What are the different types of microtomes? Discuss the advantages and disadvantages of each.
2. What is exfoliative cytology? Write in detail about PAP staining.

**II. Write Short Notes on :**

**(10X 5 = 50)**

1. Nuclear fixation.
2. Harris haematoxylin.
3. Counter staining.
4. Frozen section.
5. Decalcification.
6. Special stains for demonstration of glycogen.
7. Sharpening of knife.
8. Mordant.
9. Cryostat.
10. Cytospin

**III. Short Answer Questions:**

**(10X2 = 20)**

1. Name four types of moulds used for embedding.
2. Mention any four advantages of formalin fixatives.
3. What is the expansion of 'FNAC'? Name three stains that can be used for FNAC staining.
4. Name two section mounting agents. What is the composition of Meyer's Egg albumin?
5. Mention the different types of haematoxylin.
6. Mention the steps involved in tissue processing and one reagent used in each step.
7. What is the melting point of wax commonly used?
8. Mention any two clearing and two dehydrating agents.
9. Write two advantages and two disadvantages of frozen section.
10. Name the two processes of haematoxylin ripening. List the chemicals used for ripening.

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**B.Sc. (MEDICAL LABORATORY TECHNOLOGY) DEGREE EXAMINATION  
SECOND YEAR**

**PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES**

***Q.P. Code: 725016***

**Time : Three Hours**

**Maximum : 100 marks**

**Answer ALL questions**

**I. Essays:**

**(2 x 15 = 30)**

1. Discuss in detail the mechanism of automatic tissue processor.
2. What are the different types of embedding media?  
Name the commonly used embedding media, its advantages and disadvantages.

**II. Write Short Notes on :**

**(10 x 5 = 50)**

1. Fixatives.
2. Counter stains.
3. Preservation of blocks.
4. Frozen section.
5. FNAC stains.
6. Sediment cytology.
7. Registers in histopathology.
8. Routine staining procedure.
9. Ehrlich's haematoxylin.
10. Vaginal cytology.

**III. Short Answer Questions:**

**(10 x 2 = 20)**

1. What is surface decalcification? Mention two decalcifying agents.
2. What is dehydration? Name two dehydrating agents.
3. Mention two methods for removal of formalin pigment.
4. What are the cells seen in a normal vaginal smear.
5. What should be the temperature of the waterbath and why?
6. Name two mercury containing fixatives.
7. What is the role of section adhesives? Name one agent used as section adhesive.
8. Name four paraffin wax additives.
9. Name two section mounting media.
10. What is blueing?

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[KX 875]

AUGUST 2010

Sub. Code: 5016

**B.Sc. (MEDICAL LABORATORY TECHNOLOGY) DEGREE EXAMINATION  
SECOND YEAR**

**PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES**

***Q.P. Code: 725016***

**Time : Three Hours**

**Maximum : 100 marks**

**Answer ALL questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. What are the steps in processing a tissue for histopathology?  
Explain in detail about section cutting.
2. What is FNAC? What are the stains used in it and explain anyone in detail.

**II. Write Short Notes on :**

**(10 x 5 = 50)**

1. Embedding.
2. Dehydration.
3. Mercurial Fixatives.
4. Types of microtome knives.
5. Romanowsky stain.
6. Stains for elastic fibres.
7. Schiff's reagent.
8. Paraffin wax.
9. Freeze drying.
10. Clearance angle.

**III. Short Answer Questions:**

**(10 x 2 = 20)**

1. What are the fixation artifacts?
2. What will you do if you get alternate thick and thin paraffin wax sections?
3. Name two adhesive agents.
4. Mention the advantages of frozen section.
5. What are the different mounting agents?
6. What are abrasive powders used for sharpening microtone knives?
7. What are the different stains of vaginal smears cytology (PAP stains).
8. What is regressive staining?
9. What is the name of the staining method used to demonstrate leprosy bacilli?
10. Counterstaining for Hematoxylin stains

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[KZ 0811]

AUGUST 2011

Sub. Code: 5016

**B.Sc. (MEDICAL LABORATORY TECHNOLOGY) DEGREE EXAMINATION  
SECOND YEAR**

**PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES**

***Q.P. Code: 725016***

**Time : Three Hours**

**Maximum : 100 marks**

**Answer ALL questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Elaborate on Tissue Processing and discuss in detail section cutting.
2. Procedure of fine Needle Aspiration cytology.  
Discuss the preparation and staining of FNAC smears.
3. Discuss the basic steps in routine staining and mounting of paraffin sections.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Exfoliative cytology.
2. Cryostat.
3. Formalin fixatives.
4. Stains for fat.
5. Honing.
6. Ripening of Hematoxylin.
7. Preparation of pap stain.
8. Method of removal of formalin pigment.

**III. Short Answers on :**

**(10 x 3 = 30)**

1. Adhesive agents.
2. Cytospin.
3. Perl stain.
4. Bouin's fixative.
5. Masson's fountana.
6. Blueing.
7. Identification of cells in normal vaginal smear.
8. Uses of Microwave processing.
9. Giemsa stain.
10. Decalcifying agents.

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[LB 0212]

AUGUST 2012

Sub. Code: 5016

B.Sc. MEDICAL LABORATORY TECHNOLOGY

SECOND YEAR

PAPER I - HISTOPATHOLOGY & CYTOLOGY TECHNIQUES

Q.P. Code : 725016

Time : Three hours

Maximum : 100 marks

(180 Mins) Answer ALL questions in the same order.

I. Elaborate on:

Pages Time Marks  
(Max.)(Max.)(Max.)

- |                                                                                                 |   |    |    |
|-------------------------------------------------------------------------------------------------|---|----|----|
| 1. What is microtome? What are the types? Explain rotary microtome.                             | 7 | 20 | 10 |
| 2. Explain the staining of fine needle aspiration technology.                                   | 7 | 20 | 10 |
| 3. Explain the technique of fluorescence in SITU hybridization and its importance in diagnosis. | 7 | 20 | 10 |

II. Write notes on:

- |                                                      |   |    |   |
|------------------------------------------------------|---|----|---|
| 1. MGG.                                              | 4 | 10 | 5 |
| 2. Cryostat.                                         | 4 | 10 | 5 |
| 3. Perls stain and its applications.                 | 4 | 10 | 5 |
| 4. Explain the stains for amyloid.                   | 4 | 10 | 5 |
| 5. Museum techniques.                                | 4 | 10 | 5 |
| 6. Fixation and embedding techniques for microscopy. | 4 | 10 | 5 |
| 7. Collection of sputum for cytology.                | 4 | 10 | 5 |
| 8. Ziehl-Neelsen staining techniques.                | 4 | 10 | 5 |

III. Short answers on

- |                                              |   |   |   |
|----------------------------------------------|---|---|---|
| 1. Isopropyl alcohol.                        | 2 | 4 | 3 |
| 2. Water bath in histopathologic techniques. | 2 | 4 | 3 |
| 3. Ripening.                                 | 2 | 4 | 3 |
| 4. Paraffin wax.                             | 2 | 4 | 3 |
| 5. Cells in normal vaginal smear.            | 2 | 4 | 3 |
| 6. Troubleshooting in fixation.              | 2 | 4 | 3 |
| 7. 'L' block.                                | 2 | 4 | 3 |
| 8. Autolysis.                                | 2 | 4 | 3 |
| 9. Honing.                                   | 2 | 4 | 3 |
| 10. Melanin bleach.                          | 2 | 4 | 3 |

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[LC 0212]

FEBRUARY 2013

Sub. Code: 5016

B.Sc. MEDICAL LABORATORY TECHNOLOGY

SECOND YEAR

PAPER I – I HISTOPATHOLOGY & CYTOLOGY TECHNIQUES

Q.P. Code : 725016

Time : Three hours

Maximum : 100 marks

**I. Elaborate on:**

**(3 X 10 = 30)**

1. Explain in detail formalin fixatives and their uses.
2. Mention the various types of haematoxylin. Explain Harris haematoxylin.
3. Explain the principle, method and uses of Periodic Acid Schiff Reaction.

**II. Write Notes on:**

**(8 X 5 = 40)**

1. Congo red stain.
2. Masson's Fontana staining technique.
3. Quality control in histopathology.
4. Theory of immunofluorescence.
5. Automatic tissue processor.
6. Smear preparation for fine needle aspiration cytology.
7. Preparation of large quantity of fluid for cytologic study.
8. Staining for Iron in tissues.

**III. Short Answers on:**

**(10 X 3 = 30)**

1. Floaters.
2. Glutaraldehyde.
3. Microwave Processing.
4. Cytohormonal evaluation.
5. Ultra microtome.
6. Quality control in immunohistochemistry.
7. Differentiation in tissue processing.
8. Picric acid fixatives.
9. Stropping.
10. Wade-fite faraco stain.

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[LD 0212]

AUGUST 2013

Sub. Code: 5016

B.Sc. MEDICAL LABORATORY TECHNOLOGY

SECOND YEAR

PAPER I –HISTOPATHOLOGY & CYTOLOGY TECHNIQUES

Q.P. Code : 725016

Time: Three hours

Maximum : 100 Marks

Answer All Questions

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Describe in detail the different types of microtomes and mechanism of rotary microtome functioning.
2. Elaborate on different types of Haematoxylin used in staining and detail about the routine H&E staining procedures of tissues.
3. Enumerate the decalcifying agents and describe about the procedure of decalcification.

**II. Write Notes on :**

**(8 x 5 = 40)**

1. What are the agents used for dehydration.
2. What are cytological fixatives
3. Describe museum techniques
4. Enumerate clearing agents.
5. Describe the methods for sharpening of knives
6. Describe PAS stain procedure
7. Describe steps of rapid manual processing of tissue
8. What is microwave processing?

**III Short Answers on:**

**(10 x 3 =30)**

1. What is frozen section
2. What are the methods of decalcification
3. What are silver stains
4. What is composition of PAP Stain
5. What is the Optimum cutting angle in microtome.
6. What is FNAC
7. What is a cryostat
8. What is clearing
9. What are picric acid fixatives
10. What are Museum techniques

**[LE 0212]**

**FEBRUARY 2014**

**Sub. Code: 5016**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY**

**SECOND YEAR**

**PAPER I –HISTOPATHOLOGY & CYTOLOGY TECHNIQUES**

**Q.P. Code : 725016**

**Time: Three hours**

**Maximum : 100 Marks**

**Answer All Questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Name the different microtomes. Discuss the problems faced during section cutting.
2. What is exfoliative cytology? Mention the applications of cytology and discuss the procedure of PAP staining.
3. Name the different fixatives used in histopathology. Write a note on Manual processing of tissues.

**II. Write Notes on :**

**(8 x 5 = 40)**

1. Procedure of Hematoxylin & Eosin stain.
2. What is stropping? Write the procedure of stropping.
3. Dehydration.
4. Mounting of sections.
5. Clearing agents.
6. What are the different steps of “bringing the sections to water”?
7. Wax embedding.
8. Principle and uses of PAS staining.

**III Short Answers on:**

**(10 x 3 =30)**

1. Name the various embedding media used in Electron microscopy.
2. What are the different stains used in histopathology?
3. Meyer’s glycerol albumen.
4. What is differentiation?
5. Name the different moulds used in embedding.
6. Trimming of blocks.
7. Various microtome knife angles.
8. What is impregnation?
9. Different cells seen in a normal vaginal smear.
10. Uses of Reticulin stain.

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[LF 0212]

AUGUST 2014

Sub. Code: 5016

**B.Sc. MEDICAL LABORATORY TECHNOLOGY  
SECOND YEAR  
PAPER I – HISTOPATHOLOGY & CYTOLOGY TECHNIQUES  
Q.P. Code : 725016**

**Time: Three hours**

**Maximum : 100 Marks**

**Answer All Questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Mention the various types of hematoxylin. Explain Harris hematoxylin.
2. Write the principle and applications of immunohistochemistry.
3. Explain the principle, procedure and applications of the PAS stain.

**II. Write Notes on:**

**(8 x 5 = 40)**

1. Glutaraldehyde fixative.
2. Automatic tissue processor.
3. Types of mountants.
4. Mention the stains for amyloid and explain one.
5. Mounting of specimens for museum.
6. Trouble shootings in section cutting.
7. Stain for iron.
8. Cryostat.

**III Short Answers on:**

**(10 x 3 =30)**

1. Ribboning of sections.
2. Xylene.
3. Differentiation.
4. Antigen retrieval.
5. Barcode in histopathology.
6. Autolysis.
7. Automatic stainer.
8. Zenkers fixative.
9. Safety measures on histopathology laboratory.
10. Decalcifying solution.

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[LG 0215]

FEBRUARY 2015

Sub. Code: 5016

**B.Sc. MEDICAL LABORATORY TECHNOLOGY**  
**SECOND YEAR**  
**PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES**  
**Q.P. Code : 725016**

**Time: Three Hours**

**Maximum : 100 Marks**

**Answer All Questions**

**I. Elaborate on:** **(3 x 10 = 30)**

1. Mention the various types of embedding media. Explain paraffin embedding.
2. Explain the composition and applications of PAP smear.
3. Describe the principle and applications of reticulin stain.

**II. Write Notes on:** **(8 x 5 = 40)**

1. Ultramicroscopy.
2. AFB stain.
3. Maintaining a pathology museum.
4. Quality control in cytology.
5. Melanin bleach.
6. Types of vaginal cells.
7. Mason Fontanna stain.
8. Processing of sputum for cytology.

**III Short Answers on:** **(10 x 3 =30)**

1. Eosin
2. Blueing.
3. Histopathology slide labeling.
4. Bouins fluid.
5. Picture of cervical cells in carcinoma.
6. Carnoy's fixation.
7. Ziehl Neelson stain.
8. Storage of slides.
9. Von Gieson technique.
10. Quality control in immunohistochemistry.

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**[LH 0815]**

**AUGUST 2015**

**Sub. Code: 5016**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY**

**SECOND YEAR**

**PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES**

***Q.P. Code: 725016***

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Explain the technique of Fluorescence In Situ Hybridization (FISH) and its importance in diagnosis
2. Write in detail about automatic tissue processor.
3. What the different types of embedding media? Mention the advantages and disadvantages of each.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Schiff's agent.
2. Stains for elastic fibres.
3. Embedding media.
4. Progressive staining.
5. Types of microtome knives.
6. Mordants.
7. Cytospin.
8. Exfoliative cytology.

**III. Short answers on:**

**(10 x 3 = 30)**

1. The cells seen in a normal vaginal smear.
2. Perl's stain.
3. Adhesive agents.
4. Any 3 uses of microwave processing.
5. Waterbath in histopathologic techniques.
6. Collection of sputum for cytology.
7. Melanin bleach.
8. Ripening.
9. Stains used in Amyloid.
10. Dehydrating agents.

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[LI 0216]

**FEBRUARY 2016**

**Sub. Code: 5016**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY**

**SECOND YEAR**

**PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES**

***Q.P. Code: 725016***

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. What is tissue Processing? Write in detail about reception of specimens and different steps of tissue processing.
2. What are the stains used in cytology? Write in detail about PAP staining.
3. Describe the technique of frozen section and the stains used in frozen sections.

**II. Write notes on:**

**(8 x 5 = 40)**

1. What is microwave processing?
2. Museum techniques.
3. Cryostat.
4. Decalcification.
5. Fixatives.
6. Stropping.
7. Harri's hematoxylin.
8. Mordants.

**III. Short answers on:**

**(10 x 3 = 30)**

1. What is FNAC? Write one advantage and one disadvantage of the procedure.
2. Name Fat stains.
3. Cytospin.
4. Mention the different types of hematoxylin.
5. Any 2 methods of removal of formalin pigments.
6. What are the factors affecting fixation?
7. What is regressive staining?
8. Name the 2 different mounting media.
9. What is blueing?
10. Autolysis.

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[LJ 0816]

**AUGUST 2016**

**Sub. Code: 5016**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY**

**SECOND YEAR**

**PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES**

***Q.P. Code: 725016***

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Write advantages and disadvantages of both manual and automatic methods of tissue processing.
2. Write the technique of frozen section. Enumerate the stains for lipids.
3. What is exfoliative cytology? Write in detail about PAP Staining.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Fine Needle Aspiration Cytology.
2. Mounting specimens for museum.
3. Microwave processing.
4. Safety measures in Histopathology Lab.
5. Glutaraldehyde Fixative.
6. Mucin Stains.
7. Decalcification.
8. Embedding Media.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Autolysis.
2. Bouin's Fixative.
3. Melanin Bleach.
4. Cytospin.
5. Stropping.
6. Ripening of Stain.
7. Clearing Agents.
8. Mountants.
9. Acid Fast Staining.
10. Adhesives.

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[LK 0217]

**FEBRUARY 2017**

**Sub. Code: 5016**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY  
SECOND YEAR  
PAPER I – HISTOPATHOLOGY & CYTOLOGY TECHNIQUES**

**Q.P. Code: 725016**

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:** (3 x 10 = 30)

1. What is microtomy? Mention various types of microtomes available and describe the important parts of Rotary microtome.
2. What is Exfoliative cytology? Explain the methods of processing and smear preparation from fluids.
3. Explain the principle and uses of Immunohistochemistry.

**II. Write notes on:** (8 x 5 = 40)

1. Liquid based cytology.
2. What is the principle and use of enzyme histochemistry?
3. Mention the Staining methods for amyloid.
4. Principle and use of Polarising microscope.
5. What is a Counterstain? Give example.
6. Mention any three stains used for the identification of fungi and describe the appearance of fungi in any one stain.
7. Safe practices in Histopathology lab.
8. What is fixation? Mention any three fixatives in Histo and Cytopathology.

**III. Short answers on:** (10 x 3 = 30)

1. Principle of silver stains.
2. Use of Ultramicrotome.
3. Uses of Frozen sections.
4. MGG stain – Expand and mention its use.
5. What is Regressive staining?
6. Use of Fite faraco stain.
7. Mounting agent for immunofluorescence sections.
8. Expand FISH and mention any one use.
9. Mention the use of microwave in immunohistochemistry.
10. Name any two clearing agents and mention its use.

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**B.Sc. MEDICAL LABORATORY TECHNOLOGY  
SECOND YEAR  
PAPER I – HISTOPATHOLOGY & CYTOLOGY TECHNIQUES**

**Q.P. Code: 725016**

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:** (3 x 10 = 30)

1. Explain the principle and methods of tissue processing including microwave processing.
2. What is Exfoliative cytology? Explain the methods of processing and smear preparation from fluids.
3. Explain the principle and uses of Immunofluorescence.

**II. Write notes on:** (8 x 5 = 40)

1. Silver stains and its uses.
2. Explain the method of Honing and stropping.
3. Mention any three embedding media and their uses.
4. PAS stain, explain the principle and uses.
5. Name one Melanin stain and give the details of the procedure.
6. Mention one museum mounting media and its uses.
7. Mention any three stains used for the identification of fungi and describe the appearance of fungi in any one stain.
8. Methods of decalcification of bone.

**III. Short answers on:** (10 x 3 = 30)

1. What is Fixation?
2. Uses of Frozen section.
3. Ripening of stains.
4. Use of Perl's stain.
5. Name the Acid fast stain for tissues.
6. Name any two clearing agents and mentions its use.
7. Mention the Mounting medias available for histo and cytopathology slides.
8. Name the adhesive used for routine histopathology sections and give its composition.
9. Use of Cryostat.
10. Use of Carnoy fixative.

**B.Sc. MEDICAL LABORATORY TECHNOLOGY**

**SECOND YEAR**

**PAPER I – HISTOPATHOLOGY & CYTOLOGY TECHNIQUES**

***Q.P. Code: 725016***

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Explain the principle, techniques and uses of frozen section.
2. What is Pap staining? Describe the cells seen in a normal vaginal smear with pap stain.
3. Explain the principle and uses of Immunohistochemistry.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Microwave and its use in histopathology.
2. What is Fine needle aspiration cytology?
3. Safe practices in Histopathology lab.
4. Methods of Decalcification of bone.
5. Explain Progressive and Regressive staining techniques.
6. Mention the types of microtome knives.
7. Write the preparation and use of any one haematoxylin stain.
8. Describe any one embedding technique.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Name the Dehydrating agents used in histopathology.
2. Adhesive used in immunohistochemistry.
3. Use of Cytospin.
4. What is vacuum embedding?
5. Mention any three Cytological fixatives.
6. Expand FISH and mention any one use.
7. Mention one silver stain and its use.
8. For what type of sections we use glass knife?
9. Use of Bouin's fixative.
10. Use of Perl's stain.

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**B.Sc. MEDICAL LABORATORY TECHNOLOGY**

**SECOND YEAR**

**PAPER I – HISTOPATHOLOGY & CYTOLOGY TECHNIQUES**

***Q.P. Code: 725016***

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Explain the principle, procedure and applications of Reticulin staining.
2. What is FNAC? Describe the technique of FNAC, smear preparation, staining and applications of FNAC.
3. Define and Classify Fixatives. Describe in detail about Aldehyde fixatives.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Automatic tissue processor.
2. Problems faced during section cutting.
3. Cell block preparation and its applications.
4. Chelating decalcifying agents.
5. Exfoliative cytology.
6. Types of Hematoxylin.
7. Clearing agents.
8. May GrunwaldGiemsa staining.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Uses of cytospin.
2. Preservation of blocks.
3. Melanin bleach.
4. Double embedding.
5. Honing.
6. Cells seen in Vaginal smear.
7. Mounting media.
8. Blueing.
9. Four paraffin wax additives.
10. Progressive staining.

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**B.Sc. MEDICAL LABORATORY TECHNOLOGY**

**SECOND YEAR**

**PAPER I – HISTOPATHOLOGY & CYTOLOGY TECHNIQUES**

***Q.P. Code: 725016***

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Describe in detail about Automation in Histopathology laboratory.
2. Enlist the stains used in Cytology. Describe in detail the composition, preparation, staining procedure and advantages of May Grunwald Giemsa staining.
3. List the various types of microtomes. Discuss in detail the procedure of section cutting. Add a note on the problems faced during section cutting and their troubleshooting.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Periodic Acid Schiff stain.
2. Factors affecting fixation of tissues.
3. Cell block preparation and its applications.
4. Classify decalcifying agents.
5. Uses and care of Cryostat.
6. Types of Embedding media.
7. Eosin and its substitutes.
8. Museum mounting techniques.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Uses of FNAC.
2. Two adhesives used in histopathology.
3. Glutaraldehyde fixative.
4. Mordants.
5. Floaters.
6. Cells seen in Vaginal smear.
7. Water bath-Temperature and use in histopathology.
8. Differentiation in tissue processing.
9. Surface decalcification.
10. Uses of Masson Fontana staining.

**B.Sc. MEDICAL LABORATORY TECHNOLOGY**

**SECOND YEAR**

**PAPER I – HISTOPATHOLOGY & CYTOLOGY TECHNIQUES**

***Q.P. Code: 725016***

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Enumerate the various Decalcifying agents. Discuss in detail about the indications and procedure of decalcification. Add a note on surface decalcification.
2. Discuss in detail the types, procedure and applications of Liquid Based Cytology.
3. Explain the principle, procedure and applications of Periodic Acid Schiff staining.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Safety precautions in histopathology laboratory.
2. Stains for amyloid.
3. Care and maintenance of Rotary microtome.
4. Neutral buffered formalin-preparation and uses.
5. Paraffin wax- melting point, additives and uses.
6. Dehydrating agents.
7. Describe any one embedding technique.
8. Museum mounting techniques.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Spray fixative.
2. Uses of cytospin.
3. Expand FISH and mention any one use.
4. Secondary fixation.
5. L-mould.
6. Wade FiteFaraco stain uses.
7. Uses of microwave processing in histopathology.
8. Clearance angle.
9. Meyer's albumin.
10. Stropping.

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**B.Sc. MEDICAL LABORATORY TECHNOLOGY**  
**SECOND YEAR**  
**PAPER I – HISTOPATHOLOGY & CYTOLOGY TECHNIQUES**

***Q.P. Code: 725016***

**Time: Three Hours**

**Maximum: 100 Marks**

**Answer all questions**

**I. Elaborate on:** **(3 x 10 = 30)**

1. Enumerate the embedding media. Write in detail the common embedding media used in histopathology.
2. Define fixation. Discuss the various fixatives and write in detail the method of formalin fixation.
3. Classify Haematoxylin. Write in detail the preparation of Harris Haematoxylin.

**II. Write notes on:** **(8 x 5 = 40)**

1. Frozen section.
2. Automatic tissue processor.
3. Vaginal cytology.
4. Types of Microtome knives.
5. Problems faced during section cutting.
6. Chelating decalcifying agents.
7. PAS stain.
8. Sputum cytology.

**III. Short answers on:** **(10 x 3 = 30)**

1. Metachromatic stains.
2. Differentiation.
3. Progressive staining.
4. Reception of specimen.
5. Counter stains.
6. Waterbath in histopathology techniques.
7. Silver stains.
8. Four paraffin wax additives.
9. Antigen Retrieval.
10. Barcode in histopathology.

**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 0321]**

**MARCH 2021**

**Sub. Code: 5016**

**(AUGUST 2020 EXAM SESSION)**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY**

**SECOND YEAR (From 2010-2011 onwards)**

**PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES**

***Q.P. Code : 725016***

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. What is tissue processing? Describe in detail about different stages of Tissue processing.
2. Enumerate the cytological stains. Describe in detail about the composition, preparation, staining procedure and advantages of May Grunwald Giemsa staining.
3. What is PAS? Explain the principle, procedure and applications of PAS staining.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Define and Classify Fixative.
2. What is Microtome? Write about Rotary Microtome.
3. Enumerate amyloid stains and write the procedure of congo red staining.
4. How to prepare cell block and mention about its application.
5. What is FNAC? Write about the advantages and disadvantages.
6. Reticulin staining.
7. Honing and stropping.
8. Museum techniques.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Types of Microtome Knives.
2. Enumerate 3 Fat stains.
3. What is Decalcification? Write any 2 decalcifying fluids.
4. What is mounting medium? Write any 2 different mounting medias.
5. Enumerate the Types of Microscope.
6. Spray fixative.
7. Write the composition of PAP Stain.
8. What is Antigen retrieval.
9. Uses of Water bath in histopathology.
10. Write briefly on Mordant.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 0222]**

**FEBRUARY 2022  
(AUGUST 2021 EXAM SESSION)**

**Sub. Code: 5016**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY  
SECOND YEAR (From 2010-2011 onwards)  
PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES  
Q.P. Code : 725016**

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on: (3 x 10 = 30)**

1. Explain Museum techniques in detail?
2. Define Microtome. Explain their types and write the advantages and disadvantage of each type?
3. Define Tissue processor. Explain the steps involved in processing the tissue for the microscopic examination?

**II. Write notes on: (8 x 5 = 40)**

1. Write a short notes on Fixatives in histopathology?
2. Discuss in detail about Cytopathology?
3. Write a note on Decalcification?
4. Write a detail note on antigen retrieval and explain the steps involved in it?
5. Write the basic steps involved in routine staining and mounting of paraffin sections?
6. Explain the steps involved in Embedding technique?
7. Explain PAS staining?
8. Write a note on Stain for Acid fast bacilli?

**III. Short answers on: (10 x 3 = 30)**

1. Define floaters?
2. Write the uses of Hot air oven?
3. Define progressive and regressive staining?
4. Write the principle of H&E staining?
5. Explain FNAC technique?
6. Define Surface decalcification?
7. Write about QC in histopathology?
8. Write the preparation of 10% Neutral buffered formalin?
9. Write about Cytology fixatives?
10. Define Cryostat?

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 0922]**

**SEPTEMBER 2022**

**Sub. Code: 5016**

**(FEBRUARY 2022 & AUGUST 2022 EXAM SESSIONS)**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY  
SECOND YEAR (Regulation from 2010-2011)  
PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES  
Q.P. Code : 725016**

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. What is Microtomy? Mention various types of microtomes and describe in detail about Rotary microtome.
2. Classify various Hematoxylin. Write about the preparation, advantages and disadvantages of Harris Hematoxylin.
3. What is Exfoliative cytology? Describe in detail about Pap staining.

**II. Write notes on:**

**(8 x 5 = 40)**

1. Enumerate the types of vaginal cells with diagram.
2. What is Fluid cytology? How to process the pleural fluid for cytology?
3. Automation in Histopathology.
4. What is a formalin pigments? Write any 2 methods of formalin pigments removal.
5. Iron staining.
6. Role of Paraffin wax in histopathology.
7. Enumerate 3 fungal stains. Describe the procedure and appearance of fungi in one method.
8. Write about Cytospin and its advantages.

**III. Short answers on:**

**(10 x 3 = 30)**

1. Write about Zenker's fluid and its uses.
2. Enumerate any 3 uses of microwave processing.
3. What is clearing? Write any 2 clearing agents.
4. L mould and its uses.
5. Uses and preparation of Mayer's albumin.
6. Tissue floatation bath.
7. Mounting agents for immunofluorescence sections.
8. Collection of sputum for cytology.
9. Write briefly on any one embedding technique.
10. Write about Frozen section and care of cryostat.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 0423]**

**APRIL 2023**

**Sub. Code: 5016**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY  
SECOND YEAR (Regulations 2010-2011 & 2018-2019 onwards)  
PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES  
Q.P. Code: 725016**

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Detail account on Automation in Histopathology.
2. Detail account on Immunohistochemistry.
3. Discuss in detail on Cytopathology.

**II. Write notes on:**

**(8 x 5 = 40)**

1. MGG stain.
2. Stain for melanin pigment.
3. Methods of Decalcification.
4. Agents used in dehydration.
5. Explain the faults and remedies during section cutting through Microtome.
6. Stain for Amyloid.
7. What are the different types of embedding media? Name the commonly used embedding media, its advantages and disadvantages.
8. Stain for connective tissues.

**III. Short answers on:**

**(10 x 3 = 30)**

1. What is ultra Microtome?
2. Cryostat.
3. Name four Paraffin wax additives.
4. Name the two processes of Haematoxylin ripening. List the chemicals used for ripening.
5. Spray fixatives.
6. What are the two ways of Smearing?
7. Endocervical brush.
8. Define Polymerase Chain Reaction.
9. Composition of Kaiserling solution I, II, III.
10. Uses of Mucin stain.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 1123]**

**NOVEMBER 2023**

**Sub. Code: 5016**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY  
SECOND YEAR (Regulations 2010-2011 & 2018-2019 onwards)  
PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES  
Q.P. Code: 725016**

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on: (3 x 10 = 30)**

1. Write a detailed note on Immunofluorescence technique and explain about the Fluorescence Microscope.
2. Explain the stepwise process in processing the fresh tissue sample in detail.
3. Explain the stains for Carbohydrates in detail.

**II. Write notes on: (8 x 5 = 40)**

1. Aldehyde fixatives.
2. Microtome knives.
3. Histochemical stains.
4. Stains for Elastic fibre.
5. Grossing and embedding.
6. Explain the steps involved in producing a good ribbon sections.
7. Write the steps involved in immunohistochemistry staining after antigen retrieval in detail.
8. Stain for Connective tissue.

**III. Short answers on: (10 x 3 = 30)**

1. Define Honing and Stropping.
2. Eosin and its types.
3. Silver stains.
4. Parts of Microtome and their uses.
5. Rapid Staining in Frozen section.
6. DPX and its uses.
7. Schedule of tissue processing for small and large specimen.
8. Preparation of Hematoxylin.
9. Define Quality Control in Cytology.
10. Uses of Water bath.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 0424]**

**APRIL 2024**

**Sub. Code: 5016**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY  
SECOND YEAR (Regulations 2010-2011 & 2018-2019 onwards)  
PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES  
Q.P. Code: 725016**

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on: (3 x 10 = 30)**

1. Define Decalcification. Discuss in detail about various Decalcifying Agents and procedure of Decalcification.
2. Discuss in detail about Routine Paraffin section cutting and add a note on Clearing Agents.
3. Describe Papanicolaou staining and identification of Cells in a Normal Vaginal Smear.

**II. Write notes on: (8 x 5 = 40)**

1. Reticulin stain.
2. Fixatives.
3. Automatic Tissue Processor.
4. Procedure of Haematoxylin and Eosin staining.
5. Mordant.
6. Principle and uses of Immunohistochemistry.
7. Cellblock preparation and its application.
8. Mounting Media.

**III. Short answers on: (10 x 3 = 30)**

1. Rocking Microtome.
2. Preparation of 10 % formalin in Histopathology.
3. Clearance angle.
4. Blueing.
5. Name two Dehydrating agents.
6. Melanin bleach.
7. Advantages of Frozen section.
8. Regressive staining.
9. Cytospin.
10. Honing.

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**THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY**

**[AHS 1125]**

**NOVEMBER 2025**

**Sub. Code: 5016**

**B.Sc. MEDICAL LABORATORY TECHNOLOGY  
SECOND YEAR (Regulations 2010-2011 & 2018-2019 onwards)  
PAPER I – HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES  
Q.P. Code: 725016**

**Time: Three hours**

**Answer ALL Questions**

**Maximum: 100 Marks**

**I. Elaborate on: (3 x 10 = 30)**

1. What is Fixation? Classify the fixatives.
2. Explain the technique of Fluorescence in situ hybridization and its importance in diagnosis.
3. Write the principle and application of Immunohistochemistry.

**II. Write notes on: (8 x 5 = 40)**

1. Procedure and result of H and E stain.
2. Theory of immunofluorescence.
3. Masson's Fontana staining.
4. Stains for fat.
5. Procedure of non-gynecological samples in cytology.
6. Frozen cryostat.
7. Ziehl- Neelsen staining technique.
8. Stain for glycogen.

**III. Short answers on: (10 x 3 = 30)**

1. What is the result of PTAH?
2. What is impregnation?
3. Uses of reticulin stain.
4. Various microtome knife angles.
5. What is clearing and list the clearing agent?
6. Composition of PAP stain.
7. Mounting techniques.
8. What is autolysis?
9. Ribboning of sections.
10. Automatic stainer.

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