

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

Histotechnician

(under Baba Farid University of Health Sciences, Faridkot)

QUESTION BOOKLET NO

IMPRESSION OF THE CANDIDATE

OMR ANSWER SHEET NO

ROLL NO:

FULL SIGNATURE OF THE CANDIDATE

Co-ordinator stamp

FULL SIGNATURE OF INVIGILATOR

Time Allowed: 1:00 Hour (12:00 Noon to 01:00 PM)

Maximum Marks: 50

1. Use **BLACK FINE TIP BALL PEN** only. Use of pencil is not allowed.
2. Write your Roll number on the OMR answer-sheet and also on the question-booklet only in the space provided for the purpose and at no other place in the question booklets and Answer-sheet
3. Enter the Question Booklet Set and Number on the OMR Answer-sheet and also darken the corresponding bubbles with **BLACK FINE TIP BALL PEN**.
4. Do not put any marks anywhere in the Question booklet /on the OMR Answer-sheet.
5. **There are 50 objective type questions in all of 1 Mark each.** Before attempting the questions, check that the Question-booklet is complete. In case any question/part of question or page is missing, inform the Centre Superintendent within 5 minutes of the start of the examination. After that no claim will be entertained.
6. **Each question is followed by four alternative responses listed as A), B), C) and D) out of which only one is correct / most correct. In case, all the ovals are left blank, there will be deduction of marks @ 0.25 mark for each such unattempted question. Fifth oval 'E' (introduced for security purpose) is to be darkened in case you do not want to attempt the question to avoid negative marking.**
7. To open the question booklet, remove the seal gently when asked to do so. Handover the OMR Answer-sheet to the officer on duty on the completion of the time before you leave the examination hall.
8. **The candidates are permitted to carry his/her question booklet after completion of the examination but OMR Sheets are compulsory required to be deposited with the invigilator.**
9. A candidate who create disturbance of any kind or changes his/her seat or is found in possession of any paper possibility of any assistance to him/her or unfair means will be expelled from the examination by the Centre superintendent/Observer, whose decision shall be final. ("Expulsion" for this purpose would mean cancellation of the entire examination of the candidate).
10. **THE CANDIDATES ARE NOT PERMITTED TO CARRY ANY TELECOMMUNICATION EQUIPMENT SUCH AS WATCH, CELLULAR PHONE, WIRELESS SET, SCANNER ETC. INSIDE THE EXAMINATION HALL.**
11. For rough work, use only the blank space of the Question booklet.
12. The candidates will not be allowed to leave the examination hall during the examination.
13. Borrowing any material is not allowed.
14. The answer-sheet is designed for Computer evaluation. If the instructions are not followed properly, the candidate alone shall be responsible for the resultant loss.
15. Smoking/Refreshment shall not be allowed in the Entrance Test Centre/Hall.
16. Male candidates shall affix their Left Thumb Impression (LTI) while Female candidates shall affix Right Thumb Impression (RTI) at the prescribed place on the OMR answer sheet, Question Booklet and attendance sheet. The Centre superintendent shall also obtain and retain it for record.
17. The candidate must fill both the question booklet number and OMR answer sheet number on the attendance sheet.
18. No candidate shall be allowed to leave the centre before **01:00 PM**.

- Q1. The term "buffer" in neutral buffered formalin (NBF) refers to:
- A) The preservation of cellular structure
 - B) The maintenance of pH to prevent fixation artifacts
 - C) The concentration of formaldehyde
 - D) The addition of dyes for staining
- Q2. Which stain is primarily used to identify collagen in tissue sections?
- A) Hematoxylin and Eosin (H&E)
 - B) Masson's Trichrome
 - C) Periodic Acid-Schiff (PAS)
 - D) Immunohistochemical stains
- Q3. During the process of tissue embedding, what is the main purpose of using paraffin wax?
- A) To maintain tissue morphology
 - B) To enhance staining properties
 - C) To provide a solid support for thin sectioning
 - D) To prevent microbial growth
- Q4. Which organization is primarily responsible for setting laboratory standards in the United States?
- A) American Society for Clinical Laboratory Science (ASCLS)
 - B) College of American Pathologists (CAP)
 - C) Food and Drug Administration (FDA)
 - D) Occupational Safety and Health Administration (OSHA)
- Q5. Toluidine blue stain is particularly useful for visualizing:
- A) Nucleic acids
 - B) Mast cells
 - C) Glycogen
 - D) Elastic fibers
- Q6. Which technique is commonly used to detect specific proteins in tissue samples?
- A) Hematoxylin and Eosin staining
 - B) Immunohistochemistry
 - C) In situ hybridization
 - D) Electron microscopy
- Q7. What is the significance of using enzyme inhibitors during enzyme histochemistry?
- A) To enhance enzyme activity
 - B) To prevent degradation of the tissues
 - C) To improve the specificity of the reaction
 - D) To stabilize the enzyme during staining
- Q8. Glutaraldehyde is the fixative of choice for which of the following test?
- A) Light microscopy
 - B) Paraffin embedding
 - C) Frozen sections
 - D) Electron microscopy
- Q9. What is the main purpose of implementing quality control measures in histology labs?
- A) To increase the workload
 - B) To ensure consistency and accuracy of results
 - C) To reduce costs
 - D) To speed up processing times
- Q10. What is the correct procedure for handling formalin to ensure laboratory safety?
- A) Wear personal protective equipment (PPE)
 - B) Use in an unventilated area
 - C) Store without any precautions
 - D) Ignore manufacturer instructions

Q11. Following symbol on a chemical bottle in the laboratory means:



- A) Corrosive
- B) Carcinogen
- C) Flammable
- D) Explosive

Q12. In the process of tissue processing, which step typically occurs after fixation?

- A) Staining
- B) Embedding
- C) Dehydration
- D) Clearing

Q13. What is the purpose of using antigen retrieval techniques in immunohistochemistry?

- A) To increase sensitivity
- B) To enhance antigen availability
- C) To decrease background staining
- D) To improve tissue morphology

Q14. Which factor can affect the quality of histological sections during microtomy?

- A) Temperature of the embedding medium
- B) Thickness of the blade
- C) Speed of the microtome
- D) All of the above

Q15. What should be the ratio between the volume of the tissue and the fixative for histopathology processing?

- A) 1:5
- B) 1:10
- C) 1:20
- D) 1:100

Q16. Which fixative is particularly effective for preserving lipids in tissue samples?

- A) Formaldehyde
- B) Osmium tetroxide
- C) Ethanol
- D) Acetic acid

Q17. The process of rehydrating tissue sections prior to staining typically involves passing the slides through:

- A) Decreasing concentrations of alcohol
- B) Increasing concentrations of alcohol
- C) Increasing concentrations of xylene
- D) Hardening agents

Q18. Which of the following is true regarding the DAB chromogen used in immunohistochemistry?

- A) It is directly used in fluorescent staining.
- B) It produces a brown precipitate upon reaction with horseradish peroxidase.
- C) It stains nucleic acids specifically.
- D) It is used as a counterstain.

Q19. Which artifact can result from thermal damage during the cutting of sensitive tissues?

- A) Chatter
- B) Burn artifact
- C) Fold artefact
- D) Vascular artifact

- Q20. In histological staining, a "counterstain" is primarily used to:
- A) Distinguish between different types of cells
 - B) Improve the staining of the primary dye
 - C) Provide background contrast to the main stain
 - D) Help in fixing the tissue
- Q21. What is the function of the primary antibody in an immunohistochemical staining process?
- A) To amplify the signal
 - B) To bind specifically to the target antigen
 - C) To provide tissue structure
 - D) To facilitate tissue fixation
- Q22. If the clearance angle is too steep, what artifact might you observe in your tissue sections?
- A) Wrinkling of sections
 - B) Curling at the edges
 - C) Chatter or fraying
 - D) Air bubbles
- Q23. Which stain would be most useful for identifying myelin in nerve tissue?
- A) Luxol fast blue
 - B) Congo red
 - C) Silver stain
 - D) Oil Red O
- Q24. In which step of tissue processing is xylene primarily used?
- A) Fixation
 - B) Dehydration
 - C) Clearing
 - D) Embedding
- Q25. Which of the following artifacts can be caused by improper fixation?
- A) Shrinkage
 - B) Overstaining
 - C) Lack of contrast
 - D) All of the above
- Q26. In immunohistochemistry, which of the following is used to visualize the bound antibody in tissue sections?
- A) Hematoxylin
 - B) Fluorochromes
 - C) DAB (3,3'-Diaminobenzidine)
 - D) Methylene blue
- Q27. What is the main purpose of using a cryostat in histology?
- A) To heat tissues for embedding
 - B) To preserve the structural integrity of fresh tissues
 - C) To dehydrate specimens quickly
 - D) To cut tissues at room temperature
- Q28. The optimal clearance angle for paraffin-embedded tissue is generally considered to be:
- A) 10-15 degrees
 - B) 15-25 degrees
 - C) 25-30 degrees
 - D) 30-40 degrees
- Q29. Which staining method is most effective for visualizing lipids in tissue sections?
- A) Masson's Trichrome
 - B) Hematoxylin and Eosin
 - C) Wright's Stain
 - D) Oil Red O
- Q30. Which of the following is the most commonly used fixative in histopathology?
- A) Acetic acid
 - B) Formaldehyde
 - C) Methanol
 - D) Ethanol

- Q31. Bouin's fixative is a combination of which of the following components?
 A) Formaldehyde, acetic acid, and ethanol
 B) Mercuric chloride, formaldehyde, and acetic acid
 C) Alcohol, formaldehyde, and vinegar
 D) Glutaraldehyde, methanol, and phosphoric acid
- Q32. Healthcare workers who deal with biomedical waste should mandatorily take which of the following vaccine?
 A) Hepatitis B vaccine
 B) Rabies
 C) Influenza vaccine
 D) All of the above
- Q33. Which type of stain is used to identify glycogen in tissue sections?
 A) Hematoxylin and Eosin (H&E) B) PAS (Periodic Acid-Schiff)
 C) Masson's Trichrome D) Wright's Stain
- Q34. What is the fixation time generally recommended for most tissues in formalin?
 A) 5 minutes B) 1 hour
 C) 12-24 hours D) 2-3 days
- Q35. Which of the following protocol is most widely followed for processing of the bone marrow biopsy?
 A) Hammersmith protocol
 B) Duke protocol
 C) Zanker protocol
 D) Louis protocol
- Q36. What effect does fixation with buffered formalin have on tissue proteins?
 A) No effect B) Denaturation
 C) Degradation D) Solubilization
- Q37. Which of the following factors can affect the effectiveness of a fixative?
 A) Temperature of fixation
 B) Size and thickness of the tissue
 C) Duration of fixation
 D) All of the above
- Q38. What is the main application of Oil Red O stain?
 A) To detect collagen fibers B) To visualize lipids in tissues
 C) To stain nuclei of cells D) To identify bacterial infections
- Q39. Section cutting machine is known as:
 A) Cryostat
 B) Microtome
 C) Histoform
 D) Histokinete
- Q40. Which of the following is a characteristic of a good histochemical stain?
 A) It only stains a single cell type. B) It reduces background staining.
 C) It is insoluble in organic solvents. D) It requires no special fixation.

- Q41. Which fixative is most commonly used for enzyme histochemistry?
 A) Neutral buffered formalin B) Acetone
 C) Bouin's solution D) Methanol
- Q42. Which histochemical method is specifically used for staining the reticulin fibers in tissue?
 A) Jones' methenamine silver stain B) Van Gieson stain
 C) Weigert's elastic stain D) Giemsa stain
- Q43. Which of the following is the most preferred acid for decalcification of tissues?
 A) 20% sulfuric acid
 B) 25% hydrochloric acid
 C) 5% nitric acid
 D) 28% formic acid
- Q44. Which of the following practices is NOT recommended to reduce section cutting artifacts?
 A) Proper specimen orientation
 B) Adjusting the microtome settings according to tissue type
 C) Leaving the blade unsharpened
 D) Maintaining a consistent temperature in the cutting area
- Q45. What is the general order of the H&E staining procedure?
 A) Fixation → Hematoxylin → Eosin → Dehydration
 B) Fixation → Eosin → Hematoxylin → Bluing
 C) Fixation → Hematoxylin → Bluing → Eosin
 D) Fixation → Hematoxylin → Eosin → Bluing
- Q46. In the H&E stain, what cellular structure is primarily stained by Eosin?
 A) Mitochondria B) Nuclei
 C) Cytoplasm D) Plasma membrane
- Q47. In PAS staining, what color do polysaccharides generally appear after staining?
 A) Blue B) Red to magenta
 C) Green D) Yellow
- Q48. Program for ensuring quality standards in a lab "EQAS" stands for:
 A) External quality assurance scheme
 B) External quality accreditation scheme
 C) External quality assessment scheme
 D) External quality accuracy scheme
- Q49. NABL stands for:
 A) National Accreditation Board for testing and calibration laboratories
 B) National Accreditation Board for laboratories
 C) National Accreditation Bureau for testing and calibration laboratories
 D) National Academy for testing and calibration laboratories
- Q50. Which of the following chemical is most commonly used to charge the slides used for immunohistochemistry?
 A) Egg albumin B) Poly-L-lysine
 C) Polystyrene D) Sulfomucin

ANSWER KEY**Recruitment test conducted on 23/01/2025 for post of Histo-Technician
under BFUHS, Faridkot**

1	B		26	C
2	B		27	B
3	C		28	B
4	B		29	D
5	B		30	B
6	B		31	B
7	C		32	A
8	D		33	B
9	B		34	C
10	A		35	A
11	D		36	B
12	C		37	D
13	B		38	B
14	D		39	B
15	C		40	B
16	B		41	A
17	A		42	A
18	B		43	C
19	B		44	C
20	C		45	D
21	B		46	C
22	C		47	B
23	A		48	A
24	C		49	A
25	D		50	B