



श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, तिरुवनन्दपुरम् - ६९५ ०११, केरल, भारत
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY
THIRUVANANTHAPURAM – 695 011 KERALA, INDIA
(An Institute of National Importance under Govt. of India)
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WRITTEN TEST FOR THE POST OF SCIENTIFIC ASSISTANT (LAB) IN

DIVISION OF EXPERIMENTAL PATHOLOGY

Roll No.

Date: 30.12.2019

Duration: 60 Minutes

Time: 10.00 A.M

Total Marks: 50

INSTRUCTIONS TO THE CANDIDATE

1. Write your Roll Number in the Question Booklet and in the answer sheet.
2. Write legibly the alphabet of the most appropriate answer in the separate answer sheet provided.
3. There will not be any Negative marking.
4. Over-writing is not permitted.
5. Candidate should sign in the question paper and answer sheet.
6. No clarifications will be given.
7. Candidate should hand over the answer sheet and question paper to the invigilator before leaving the examination hall.

Signature of the Candidate

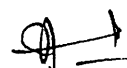
Office Copy
[Signature]

SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY
BIOMEDICAL TECHNOLOGY WING, POOJAPPURA, TRIVANDRUM-12
(An Institute of National Importance under Govt.of India)

VOP Scientific Assistant (Lab) – Division of Experimental Pathology

50 Questions

1. _____ is best defined as the study of diseased tissue.
A. Cytopathology
B. Histopathology
C. Hematology
D. Light microscopy
2. Which one of the following is a property common to formalin, alcohol, acetone and acetic acid? All of them are _____.
A. Fixatives
B. Dehydrating agents
C. Clearing agents
D. Mordents
3. During routine tissue processing, _____ is usually performed after dehydration.
A. Embedding
B. Infiltration
C. Impregnation
D. Clearing
4. In a histopathology laboratory, microtomy results in tissue sections of _____ thickness.
A. Less than a micron
B. 1-3 microns
C. 3-6 microns
D. 6-9 microns
5. When there is an expected delay for fixation of postmortem tissue by 24 hours, the best method of preservation of the tissue is _____.



- A. Refrigeration
 - B. Freezing
 - C. Microwaving
 - D. Dehydration
6. Which of the following is a coagulant fixative?
- A. Formaldehyde
 - B. Ethyl alcohol
 - C. Osmium tetroxide
 - D. Chromium trioxide
7. 100% Formalin is made of _____.
- A. 10% formaldehyde
 - B. 40% formaldehyde
 - C. 100% formaldehyde
 - D. 0% formaldehyde
8. 100% formaldehyde is exists in _____ form.
- A. Plasma
 - B. Solid
 - C. Liquid
 - D. Gas
9. Name of the fixative of choice for staining Nissl bodies.
- A. Zenker's fixative
 - B. Bouin's fixative
 - C. Carnoy's fixative
 - D. Helly's fixative
10. The fixative which is considered best for staining cytoplasm.
- A. Zenker's fixative
 - B. Bouin's fixative
 - C. Carnoy's fixative
 - D. Helly's fixative
11. A natural alternative used for tissue fixative.
- A. Honey
 - B. Sugar syrup
 - C. Jaggery
 - D. All the above

12. A natural alternative used for tissue clearing.
- Coconut oil
 - Cedarwood oil
 - Lemon water containing 1.5% dish washing solution
 - All the above
13. A reasonable fixation time in 10% neutral buffered formalin for optimum immunohistochemistry is ____.
- Less than 24 hours
 - 24-96 hours
 - At least 4 days
 - 7 days
14. In a histopathology laboratory, cryomicrotomy usually results in tissue sections of ____ thickness.
- 1-4 microns
 - 5-10 microns
 - 10-20 microns
 - None of the above
15. Which one of the following is not a natural dye?
- Haematoxylin
 - Eosin
 - Carmine
 - Orcein
16. The word 'decerate' denotes ____.
- Deparaffinization
 - Clearing
 - Hydration
 - None of the above
17. Which of the following properties relates to 'Canada balsam and gum dammar'?
- Natural resins
 - Excellent clearing agents
 - Good for immersion microscopy
 - Mounting media

- A. 1 and 2
- B. 1 and 3
- C. 1 and 4
- D. 2 and 3

18. An auxochrome is best defines as _____.

- A. A 'quinoid' used to stain tissue structure.
- B. An auxiliary group which imparts charge to the chromogen to stain tissue structure.
- C. A molecule that can be used as a substitute for chromogen to stain tissue structure.
- D. A chromophobe that can impart colors to tissue structure.

19. In histotechnology, a lake denotes _____.

- A. A stain-mordent complex
- B. An ionizer-mordent complex
- C. An alum-mordent complex
- D. None of the above

20. Fixatives containing _____ is considered as an intolerant fixative.

- A. Mercuric Chloride
- B. Chromic Acid
- C. Picric Acid
- D. Dichromate

21. Why do we use Mallory's stain?

- A. To demonstrate DNA
- B. To demonstrate iron pigment
- C. To demonstrate carbohydrate
- D. To demonstrate collagen

22. The colour of collagen in VanGieson's stained slide is _____.

- A. Yellow
- B. Red
- C. Blue
- D. Purple

23. In histology sections, lipid demonstration is possible by _____ staining.

- A. Oil red O
- B. Sudan Black
- C. Osmium tetroxide
- D. All the above

24. Oxidation of Haematoxylin to hematin is known as _____.
A. Mordaning
B. Ripening
C. Blueing
D. Chelating
25. During histology staining, removal of excess stain is known as _____.
A. Neutralization
B. Blueing
C. Differentiation
D. Bleaching
26. Out of the following fixatives, which one does not contain picric acid?
A. Bouin's fluid
B. Helly's fluid
C. Gendre's fluid
D. Rossman's fluid
27. Name a plastisizer used in synthetic resin.
A. Tricresyl phosphate
B. Dibutylphthalate
C. Tricresyl sulphate
D. All the above
28. The preferred resin for histomorphometry of undecalcified bone.
A. Epoxy resin
B. Acrylic resin
C. Methylmethacrylate
D. Any of the above
29. Name a metachromatic dye
A. Haematoxylin
B. Eosin
C. Toluidine blue
D. Congo red

30. While conducting testing in a GLP (or ISO17025) certified laboratory, what will be your stain of choice from among the following for staining thick poly-methyl-methacrylate embedded section of aorta containing metallic stent?
- A. A Stevenel's Blue staining procedure standardized in the laboratory.
 - B. Adequately validated Haematoxylin and eosin staining procedure.
 - C. Any stain as instructed by Pathologist who grossed the sample.
 - D. The stain specified in the Work Procedure or Standard Operating Procedure identified for the testing.
31. During immunohistochemistry, antigen retrieval is performed by _____.
- A. Treatment with an appropriate enzyme
 - B. Pressure cooking
 - C. Microwaving
 - D. All of the above
32. Name a method for demonstrating fungus in histology sections.
- E. GMS method
 - F. PAS method
 - G. Grindley's method
 - H. All of the above
33. Name the specific stain for calcium in tissue sections.
- A. VonKossa' stain
 - B. Alizarin Red S stain
 - C. Both the above
 - D. None of the above
34. The preferred adhesive used on slides for tissue sections indented for immunohistochemistry.
- A. Poly-L Lysine
 - B. Albumin
 - C. Gelatin
 - D. Glycerine
35. The preferred buffer for Electron microscopy.
- A. Tris-EDTA buffer
 - B. Phosphate buffered saline
 - C. Sodium cacodylate buffer
 - D. Sorenson's buffer

36. Name the ISO standard recommended for biocompatibility testing, based on local tissue reaction in animal models.
- A. ISO 10993-3
 - B. ISO 10993-4
 - C. ISO 10993-5
 - D. ISO 10993-6
37. The international standard ISO 17327 relates to _____.
- A. Surgical implants coated with natively passivated metal surfaces
 - B. Surgical implants having coverings
 - C. Non-active surgical implants
 - D. All of the above
38. Identify the ISO-standard that contain information on Quality Management Systems related to Medical Device Regulatory requirements.
- A. ISO 10993
 - B. ISO 13484
 - C. ISO 17025
 - D. ISO 15189
39. How many classes of medical devices are envisaged in medical Device Rules 2019, of the Government of India?
- A. One
 - B. Two
 - C. Three
 - D. Four
40. Which of the following International standards relates to the requirements of quality and competence for Medical laboratories?
- A. ISO 10993
 - B. ISO 13484
 - C. ISO 17025
 - D. ISO 15189
41. Name the accreditation system appropriate for a medical histopathology laboratory, that testifies the quality of test results.
- A. CAP accreditation
 - B. CLIA certification

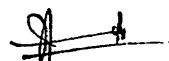


- C. ISO 17025
- D. ISO 15189

42. Which of the following international standards does not involve histopathology?
- A. ISO 10993-Part 5
 - B. ISO 10993-Part 6
 - C. ISO 10993-Part 10
 - D. ISO 10993-Part 11
43. What is the main content of the international standard ISO 10993-1: 2018 (Part-1 of the standard for Biological evaluation of medical devices)?
- A. Evaluation and testing within a risk management process
 - B. Guidance on selection of tests for biocompatibility
 - C. Animal welfare requirements
 - D. Tests for local effects of implantation
44. The current version of ISO 10993-10 was reviewed and accepted in the year ____.
- A. 2010
 - B. 2013
 - C. 2016
 - D. 2019
45. Among skin sensitization tests, what is the other name for Buehler test?
- A. Mouse Local Lymph Node Assay
 - B. Guinea Pig Maximisation test
 - C. Test on extract
 - D. Closed-patch test
46. Which of the following organs is not normally weighed during necropsy while evaluating acute systemic toxicity as per ISO 10993-11?
- A. Heart
 - B. Liver
 - C. Kidney
 - D. Brain
47. Which of the following cells is not specifically considered for calculating irritancy score, as per ISO 10993-6, following intramuscular implantation in rabbit?
- A. Lymphocyte
 - B. Neutrophil

- C. Eosinophil
 - D. Muscle giant cells
48. What will be your immunohistochemistry marker for identifying macrophages after subcutaneous implantation study for evaluating a potential biomaterial in rat?
- A. CD 4
 - B. CD 8
 - C. CD 68
 - D. CD 79
49. In a histopathology laboratory evaluating local effects of implantation of biomaterials in animal models, what is the major criterion for opting relatively a short-duration procedure for tissue processing?
- A. Type of implant
 - B. Animal species used
 - C. Organ/Site of implantation
 - D. Thickness of the specimen
50. If you are asked to choose an agency for proficiency testing of activities of your histopathology laboratory, what will be your primary criteria in short-listing various agencies?
- A. A laboratory/agency following ISO 15189 system
 - B. A laboratory/agency following ISO 17011 system
 - C. A laboratory/agency following ISO 17025 system
 - D. A laboratory/agency following ISO 17043 system

END OF TEST



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ANSWER KEY

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PATHOLOGY

WRITTEN TEST HELD ON 30.12.2019 AT 10AM

1	B
2	A
3	D
4	C
5	A
6	B
7	B
8	D
9	C
10	A
11	D
12	D
13	B
14	B
15	B
16	A
17	C
18	B
19	A
20	A

21	D
22	B
23	D
24	B
25	C
26	B
27	B
28	C
29	C
30	D
31	D
32	D
33	B
34	A
35	C
36	D
37	C
38	B
39	D
40	D

41	A
42	A
43	A
44	C
45	D
46	A
47	D
48	C
49	D
50	D

