



**RAJARATA UNIVERSITY OF SRI LANKA  
FACULTY OF APPLIED SCIENCES, MIHINTALE**

**B.Sc. (General) Degree in Applied Sciences  
First Year Semester II Examination – April/May 2015**

**BIO 1109 – LABORATORY TECHNIQUES IN BIOLOGY**

**Time: Three (03) hours**

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**Answer (50) structured all questions.**

1. Write your answers for the **fifty (50)** questions in paper itself.  
(25 marks)
2. Make a permanent stained preparation of the given slide A using the **double staining method**.  
(40 marks)
3. Make a permanent stained preparation of specimen B of striped muscle provided in distilled water, using the **single staining method**.  
(25 marks)
4. Give your comments on C – G.  
(10 marks)

**Laboratory Techniques in Biology – BIO 1109****Answer all questions.**

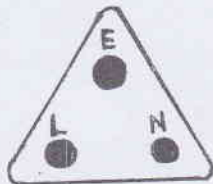
1. Name
- three**
- Biological hazards.

.....

2. Name
- three**
- Biological specimens that can cause hazards.

.....

3. Label the points in the plug base.



Plug Top



Plug Base

4. A 3-core electrical cord from an item of equipment can be connected to a plug top in 6 different ways as follows.

(Response Letter)	A	B	C	D	E	F
Brown or red covered wire {L} Connected to:	E	E	N	N	L	L
Blue covered wire {N} Connected to:	L	N	L	E	N	E
Yellow/ green or green covered wire {E} Connected to:	N	L	E	L	E	N

Only **One** way is correct.

Write the correct response letter {A, B, C, D, E, or F} for each of the answers given below.

- a). The correct way to connect the plug top, is .....
- b). The 2 ways that can cause a bad shock when the equipment is connected to the plug base but not switched on, are .....
- c). The 2 ways of getting a bad shock when the equipment is switched on, are.....
5. Give **three** causes that can lead to shock injury due to short circuits in equipment.
- .....
- .....
- .....
6. Name **three** types of harmful chemicals.....
- .....

7. Give one example of each type of harmful chemical you have written

.....  
.....  
.....

8. Give four causes of chemical hazards.

.....  
.....  
.....

9. Give two harmful results of fire.

.....  
.....

10. Give five instances where you can be responsible for causing a fire.

.....  
.....  
.....  
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11. Give five basic safety measures.

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.....  
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12. Give five ways where you can protect yourself from electrical danger.

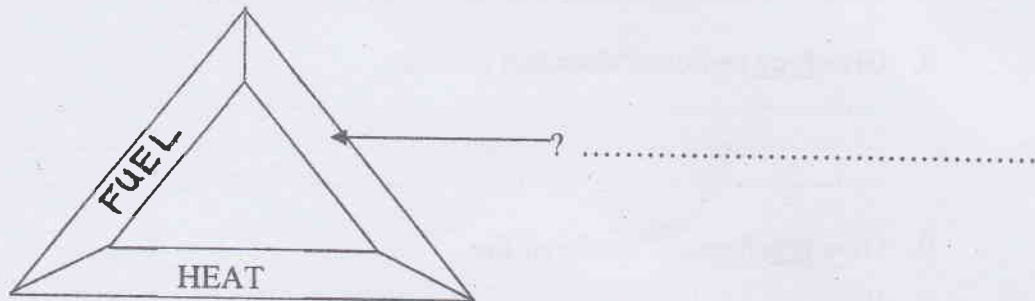
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13. Give five ways you can prevent chemical hazards.

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.....  
.....  
.....  
.....

14. Do you dilute acids lay a) Adding water to Acid b) Acid to water  
answer.....

15. The fire triangle. Write in the missing factor.



16. To extinguish fires due to electricity which extinguisher do you use?

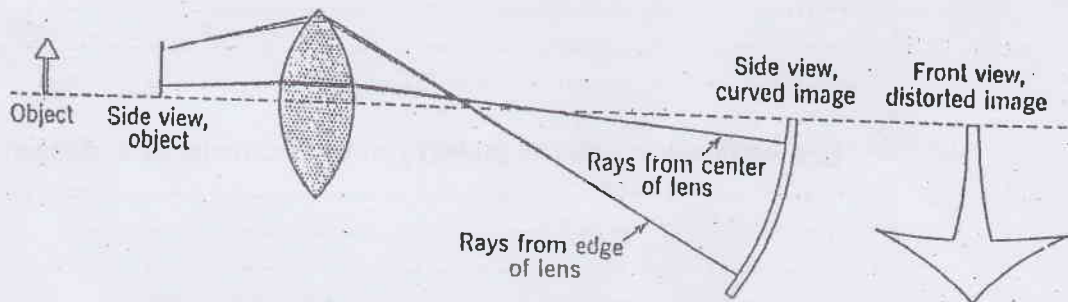
- a) Dry Chemical      b) Carbon dioxide      c) Foam      d) Soda acid

Answer.....

17. How many lenses are there in

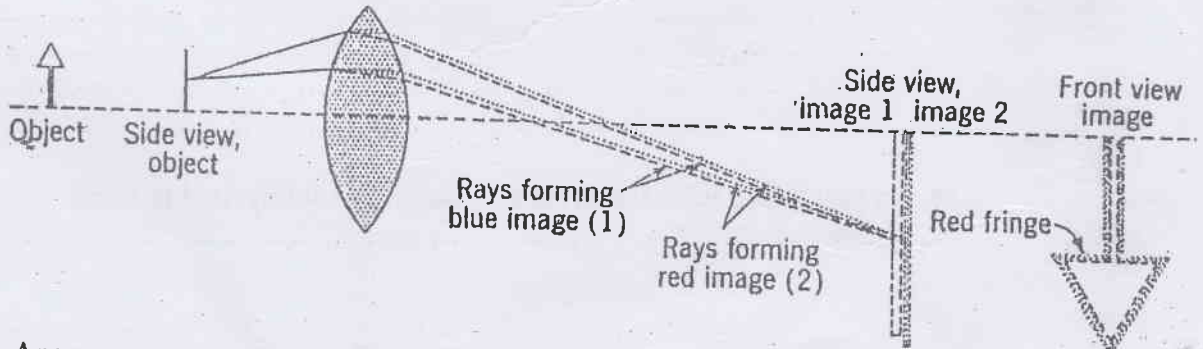
- a) A simple Microscope.....  
b) A compound Microscope.....

18. What is this lens aberration?



Answer: .....

19. What is this lens aberration?



Answer: .....

20. The most important part of the microscope is the  
 a) Condenser      b) Mirror      c) Eye piece      d) Objective      e) Body tube  
 .....
21. What is the comments problem in a Microscope?  
 .....
22. The fixative recommended for protozoan smears is  
 a) Bouins      b) Formal saline      c) Schaudins      d) Gilsons  
 .....
23. A fresh smear for staining should first be mixed with water or saline before  
 applying on a slide.      A) Yes      B) No .....  
 Why? .....
24. 1. What does Haematoxylin stain in a cell or tissue? .....  
 2. What does Eosin stain in a cell or tissue? .....
25. 25% Alcohol → 50% Alcohol → 70% Alcohol → ? → Absolute  
 Alcohol. ....  
 What is this process called? .....
26. For the preparation of the mouth parts of a cockroach how will you remove the  
 soft Internal parts and only leave the exoskeleton?  
 .....
27. What is the commonest preservative for Biological specimens and at what  
 percentage (%) is it mainly used? .....
28. What percentage (%) is Alcohol usually used for preserving specimens?.....
29. At what oven temperature do we incubate fresh, fertilized eggs.  
 .....
30. For how many hours do we have to incubate an egg to obtain a 48hour embryo?  
 .....
31. What is the fixative needed for fixing chick embryos of 36 hrs incubation and  
 above? .....
32. What is the single stain used in staining whole mounts of muscle?  
 .....
33. Give two methods of clearing muscle during skeletal preparation  
 .....  
 .....



34. What is the chemical commonly used to degrease a skeleton and at what percentage (%) is it used? .....
35. What are the chemical used to bleach a skeleton? .....
36. What are the two main components needed for Bioplastic embedding? .....
37. How are prepared bioplastic blocks shaped and smoothened? .....
38. What is used to polish the smoothened bioplastic block? .....
39. What is Taxidermy? .....
40. What is the chemical we use to preserve (or treat) the skin of a bird before stuffing? .....
41. For Taxidermy what are the parts of a bird that we retain along with the skin? .....
42. What is the material used to make an artificial body for bird taxidermy? .....
43. What is the stain used for the giant chromosomes from the salivary glands of *Chironomus* larva? .....
44. What are the stages in Microtechnique? .....
45. Give two examples of clearing agents used in Microtechnique? .....
46. What is the medium used for impregnation and embedding of tissue for Microtechnique? .....
47. What is the name of the machine used for cutting sections in Microtechnique? .....
48. What is a micron? .....
49. What is the medium used to attach microtome sections on a slide? .....
50. What chemical is used to remove the wax from a mounted microtome section before staining? .....