



(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2019/2020 ACADEMIC YEAR**

3RD YEAR 2ND TRIMESTER EXAMINATIONS

**FOR THE DIPLOMA
OF
MEDICAL LABORATORY SCIENCE**

COURSE CODE: BBD 322

COURSE TITLE: EXPERIMENTAL ANIMAL TECHNOLOGY

DATE: 9TH DECEMBER 2020

TIME: 2.00 -4.00 PM

INSTRUCTIONS TO CANDIDATES

This paper is divided into three sections, **A B** and **C**, carrying respectively: Multiple Choice Questions (**MCQs**), Short Answer Questions (**SAQs**) and Long Answer Questions (**LAQs**).

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

SECTION A (20 MARKS)

- 1). Immunization in laboratory animals is done for a wide variety of reasons **except**
 - A) Induce B cells for the production of hybridomas
 - B). Production of mono clonal and poly clonal antibodies
 - C) Development of quality control of immunological products
 - D) To induce adverse effects such as local inflammation
- 2). Which of the following factors are considered in the animal immunization protocol
 - A). Selection of animal species/sex and nutrition
 - B). Use of inbred and outbred animals
 - C). All the above
 - D). None of the above
- 3). Frequently immunization protocols for laboratory animals require the use of adjuvant products, which of the following is not an effect of these adjuvants
 - A). Enhance immune response
 - B). Modify immune response
 - C). Local inflammation and tissue damage
 - D). None of the above
- 4). What is the temperature range for most laboratory animals
 - A). 20-25 degrees
 - B). 18- 24 degrees
 - C). 18-30 degrees
 - D). 18-27 degrees
- 5). The ideal humidity for laboratory animals is 50% but can range from
 - A). 30-50%
 - B). 30-70 %
 - C). 30- 60%
 - D). 30-80%
- 6). The animal facility should be ventilated properly if a recirculation system is to be used with filters when planning for new facilities. What is the stable environment of an air conditioner?
 - A). 5-15 changes/h
 - B) 10-15 changes/h
 - C). 10- 20 changes/h
 - D) 1-15 changes /h
- 7). Estimate the total blood count for mice in millions/kg
 - A). 58
 - B). 78
 - C). 75
 - D). 70
- 8). What is the RBC count of a rabbit in days
 - A). 20-30
 - B). 45-70
 - C). 45-68
 - D). 44-70
- 9). Determine the blood plasma PH in rats
 - A). 7.4
 - B). 7.3
 - C). 7.7

- D).7.5
- 10).Identify the crude protein in(% min) in mice
- A). 20
 - B). 24
 - C) 21
 - D). 19
- 11).What is the daily feed intake for guinea pigs in grams
- A).5
 - B). 30
 - C).15
 - D).10
- 12).Estimate the breeding time in months for monkeys
- A).50-56
 - B).9-12
 - C).3-4
 - D) .3
- 13).When devising an immunization protocol the aim will inevitably affect the following except
- A).Immunization route
 - B).The volume needed and number of times the animal will be immunized
 - C).Dosage of antigen used and adjuvant needed
 - D).All the above
 - E) None of the above
- 14). Estimate the maximum volume and tube gauge of a drug immunized to a rat weighing 250 grams orally
- A).2ml:2mm
 - B).2ml:25G
 - C).0.1ml:25G
 - D).5ml:2mm
- 15) .What is the maximum amount of blood that can be removed from an hamster
- A).0.3ml
 - B).0.5ml
 - C). 0.7ml
 - D).0.10ml
- 16). Sheltered/outdoor housing include the following except
- A).Barns
 - B).Corrals
 - C).Pastures and islands
 - D) Calf pens
- 17).Which of the following does not apply to watering devices to ensure water quality in laboratory animals
- A).Checked daily to ensure proper maintenance
 - B).To be cleaned daily
 - C).A animals are trained to use automatic devices
 - D).Ensure there is chlorinated water
- 18).Which of the following is no used as an experimental animal
- A).Mice
 - B). Rat
 - C).Guinea pig
 - D). Hyena

19).The following statement describe well animal activity except

- A).Motor activity
- B).Cognitive activity
- C).Social interaction
- D).Respiratory activity

20).immunization in laboratory animals is done for a variety of reasons, the primary purpose include (: 8marks)

SECTION B (40 MARKS)

1). A).Determine the diet composition for monkeys, rabbits and guinea pigs (8 marks)

B). Explain under what circumstances an adjuvant may be applied to optimize immune response (8 marks).

C).Describe the factors to be considered in planning for for adequate and appropriate physical and social environment, housing, space and management (8 marks)

D).The acceptable primary enclosure for laboratory animals should contain certain parameters, outline them (8 marks)

E).Name any eight laboratory animals.(8 marks)

2).Describe briefly how the following can be managed in an experimental animal house

A).Ceilings (4 marks)

B).Walls (4 marks)

C).Drainage(4 marks)

D) Floors.(4 marks)

3).Explain the following terms as used in laboratory animals

A). Pain (4 marks)

B). Analgesia 4 marks)

C).Anesthesia (4 marks)

D).Euthanasia 4 marks)

4).Describe an ideal lighting and ventilation in a laboratory animal house (8 marks)

SECTION C(60 MARKS)

1).Describe the common routes of drug administration in laboratory animals (20 marks)

2. A)Explain the techniques of handling laboratory animals (10 marks)

B) There must be cordial Huma animal interaction, explain (10 marks)

3).Outline an animal husbandry as used in laboratory animals (20 marks)