



**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS  
SPECIAL/ SUPPLEMENTARY EXAMINATIONS**

**UNIVERSITY EXAMINATIONS  
2019/2020 ACADEMIC YEAR**

**FOURTH YEAR SECOND SEMESTER EXAMINATIONS**

**FOR THE DEGREE  
OF  
BACHELOR OF SCIENCE IN MEDICAL BIOTECHNOLOGY**

**COURSE CODE: BMB 425**

**COURSE TITLE: BIOPOLICIES**

**DATE: 19<sup>TH</sup> OCTOBER 2020**

**TIME: 8.00AM -10.00 AM**

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**INSTRUCTIONS TO CANDIDATES**

Answer ALL questions in section A and B

In section C, answer question 2 as a compulsory question and any other ONE

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over.

**SECTION A (MULTIPLE ANSWER QUESTIONS, 20 MARKS)**

1. Where is the line usually drawn in ethical debates on behavioral control?
  - a. Between behaviors in adults and those in children
  - b. Between behaviors caused by medical conditions and those that are just outside social norms
  - c. Between conscious and unconscious behavior
  - d. Between behaviors that are good and those that are bad
2. Which of these is not one of the major debates about stem cell research?
  - a. Stem cell research can be used to manipulate people's behaviors
  - b. Stem cell research often involves destroying human embryos
  - c. All of these are major debates about stem cell research
  - d. Stem cell research could be used to cure degenerative diseases.
3. What is generally the ultimate focus of bioethics?
  - a. The morality of actions in daily life
  - b. Between behaviors in adults and those in children
  - c. The importance of technology in answering questions of the universe
  - d. The impact of research on humanity and human life
4. Which of the following is covered by the term 'Intellectual Property Rights'?
  - a. Copyrights
  - b. Know-how
  - c. Trade dress
  - d. All of the above
5. Which of the following can be patented
  - a. Machine
  - b. Process
  - c. Composition of matter
  - d. None of the above
6. Which of the following is NOT required on an informed consent form?
  - a. A contact person for questions about the research
  - b. The purpose of the research
  - c. A description of benefits that may be reasonably expected from the research
  - d. A list of all personnel who will be involved in the research
7. Which of the following are examples of research on human subjects?
  - a. Studies that collect data through drug clinical trials on individuals
  - b. Studies that collect data through internet surveys about alcohol consumption
  - c. Studies using private information that can be linked to individuals, even if the information was not collected specifically for the research in question
  - d. A and B
8. Autonomy is one of the main principles of bioethics means?
  - a. Selfishness
  - b. The right to be selfish
  - c. Self-awareness
  - d. Self-governance
9. The bio-ethical Principle and the Rational Choice Principle are principles that mainly guide
  - a. Physicians
  - b. Patients
  - c. Insurance companies

- d. Surrogates
10. According to the ethical principles, the benefits we are obliged to provide as healthcare professionals are specified in part by?
    - a. Our upbringing and personal values
    - b. Our relationship, role, and agreements
    - c. Our employer, the law, our conscience
    - d. Our contract with the hospital or clinic
  11. Which of the following practices should be observed when working with biological safety cabinet
    - a. Disinfect the work surface before and after work
    - b. Distinct all items that come and go into the BSC
    - c. Do not store any items in the BSC
    - d. Allow the BSC to operate before work begins and after work ends
  12. Which of the following is the correct way of transporting samples with infectious materials from the laboratory to another location?
    - a. Wear a lab coat and transport materials in your pocket
    - b. Wear gloves and carry the material in your hands
    - c. Seal materials in a leak-proof, shatter-resistant secondary container
    - d. Cells in cell culture flasks and dishes are fine for transport
  13. Samples containing risk group 3 organisms should be processed
    - a. Biological safety cabinet
    - b. Open laboratory bench
    - c. On a clean bench wearing a mask
    - d. In a fume chamber
  14. Who is responsible for providing training that is specific to the bioresearch being performed?
    - a. The lab manager
    - b. Principal Investigator
    - c. The lab personnel who is performing the work
    - d. The Department where you work
  15. Which of the following is not an aspect related to transgenic animals.
    - a. Food safety on food derived from genetically modified organisms
    - b. Health of animal (animal warfare).
    - c. Unknown risks because permits to research on animals are issued without sufficient risk analysis.
    - d. Bioterrorism
  16. Which one among this is not a major risk associated with Biosafety risk Assessment (BSA)
    - a. Human health
    - b. Environment
    - c. Food and feed quality
    - d. Economic and social impacts
  17. Which of the following procedures could generate aerosols?
    - a. Collecting of blood sample
    - b. Gram staining
    - c. Sonicating tissue culture cells
    - d. Inoculation of culture media
  18. HIV/AIDS virus can be classified as?
    - a. Risk Group 1
    - b. Risk Group 2
    - c. Risk Group 3
    - d. Risk group 4

19. Which class of biosafety level \_\_\_\_\_ laboratory used for working with Risk group two and three organisms
- Biosafety level I
  - Biosafety level II
  - Biosafety level III
  - Biosafety level IV
20. Which of the following types of medical items requires sterilization?
- needles
  - bed linens
  - respiratory masks
  - blood pressure cuffs

### **SECTION B :(SHORT QUESTIONS, 40 MARKS)**

#### **Answer all the questions in this section**

21. State the biosafety regulations for laboratories handling recombinant DNA and conducting transformation of plants, animals and microorganisms. (4mks)
22. Outline the criteria of classifying biosafety levels of laboratories (6mks)
23. Describe the approaches to biotechnology risk regulation (4mks)
24. State the factors leading to misconception of production and use of genetically modified organisms (4 mks)
- Outline ways of combating the above mentioned misconceptions (4mks)
25. Outline the main concerns raised by media on application of transgenic food crops and modern biotechnology. (4mks)
26. Outline the benefits of rDNA biotechnology (6mks)
27. Explain the link between Bioethics, biosafety and biopolicies (4mks)
28. Outline the mandate of Codex Alimentarius Commission (4mks)

### **SECTION C: ( ESSAY QUESTIONS, 40MARKS)**

29. Name any five biotechnology applications and explain bioethics concerns (15mks)
30. What is risk assessment? (2mks)
- Explain the process of risk assessment (8mks)
31. Describe the function of the Cartagena protocol (10 mks)
32. What is an intellectual property (2mks)
- Describe the characteristics of patentable biotechnology innovations (8mks)