KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOTECHNOLOGY

SBC 423: INDUSTRIAL BIOTECHNOLOGY

DATE: Thursday, 29th March, 2012 TIME: 4.30 p.m. – 6.30 p.m.

INSTRUCTIONS: WRITE ALL YOUR ANSWERS IN THE EXAMINATION ANSWER BOOKLET

SECTON A: Fill in the gaps where appropriate and answer all Questions (20 Marks)

1. Which of the following bacteria is widely used against fungus gnats?

   A) B. thuringiensis kurstaki,
   B) B. thuringiensis israelensis,
   C) B. thuringiensis aizawai,
   D) B. thuringiensis tenebrionis

2. In the biocontrol of the protozoa, which of the following microorganisms is the odd one out?

   A) *Nosema*

   B) *Thelohania,*

   C) *Normuraea*

   D) *Vairimorpha*

3. In conventional pesticides, acaricides are also known as……..

4. Fungicide is used to control the following constraints except?

   A) Steinernema

   B) blights

   C) mildews

   D) molds

5. Which of the following sites least attract the application of algicides?
    A) Lakes
    B) Water pipes
    C) swimming pools
    D) water tanks
6. Products based on *Bacillus thuringiensis* var. *tenebrionis* (*B.t.t.*) was first marketed for control of the Colorado potato beetle in which year?
    A) 1989
    B) 1988
    C) 1999
    D) 1989
7. How was *Locustana pardalina* effectively controlled after 1940?
8. Which of the bacteria is the odd one out ?
    A) rhizobium
    B) azatobacter
    C) coleopteran
    D) azolla

9. To which of the following crops is Azospirillum is used as a biofertilizer?
    A) Wheat
    B) Pulses
    C) Sugarcane
    D) Oilseed
10. A combination of Azotobacter and Phosphotika are used as biofertilizer in the seed treatment of the following crops except
    A) wheat
    B) sorghum
    C) cowpea
    D) mustard
11. On account of quality of product, which of the statements below is not a probable reason for not getting response from the application of biofertilizers.
    A) Use of ineffective strain.

B) Insufficient population of microorganisms.

C) High level of contaminants.

D) Exposure to high temperature

12. Which of the statements below is neither a soil nor environment factor that compromises the effectiveness of bioferlilizers

    A) Poor quality adhesive

    B) High soil temperature or low soil moisture.

    C) Acidity or alkalinity in soil.

    D) Poor availability of phosphorous and molybdenum.

13. The reduction of atmospheric nitrogen gas (N_2) to ammonia (NH_3) or organic nitrogen requires an enzyme known as…..

14. Give one example of a Cyanobacteria…….

15. Alanine in the presence of deaminating enzymes can be converted to ammonia and ……..?

16. Lecithin is often a food additive in the following foods except?
    A) baked goods
    B) Candy
    C) margarine,
    D) chocolate

17. Which of the amino acids below is not a basic amino acid?

    A) Glutamine

    B) Lysine

    C) Arginine

    D) Histidine

18. Which of the following vitamins is not **fat-soluble** ?

    A) vitamin A

    B) vitamin D

    C) vitamin B

    D) vitamin E

19. Of the following animals, which one produces milk with higher protein content?

    A) Buffalo

    B) Camel

    C) Reindeer

D) Ass

20. Which of the following commercial rennet is generated from *Bacilus subtilis*?

A) Harmilase

B) Fromase

C) Mikrozyme

D) Suparen

SECTION B: Answer all Questions (5 Marks each)

1. Name and briefly describe the following symbols as applied in labeling food additives (5 marks)

A)  B)  C)  D)  E) 

2. Outline the benefits of biofertilizers

3. Describe the precautions taken for biofertilizer application

4. Explain the criteria used to assess the success of a microbial control agent

5. Identify several aspects of pest control encompassed within the application of Biopesticides (5 marks)

6. Make short notes on α- tocopherol as a food additive

SECTION C: Answer Any Two Questions (10 Marks each)

1. Explain non-biological nitrogen fixation (10 marks)

2. Outline relevant example the application of genetic engineering in control of industrial pollution (10 marks)

3. Briefly discuss how bacteria leach metals from ores (10 marks)