

KATHMANDU UNIVERSITY
End Semester Examination
May/June, 2022

Marks scored:

Level : B.Tech.
Year : I

Course : BIOT 102
Semester : II

Exam Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date :

SECTION "A"

[15 Q. × 1 = 15 marks]

Encircle the most appropriate answer.

- What does an international biohazard sign look like?
 - triangle within triangles
 - circle within circles
 - rectangle within circles
 - square within circles
- Which of the following statements about aspergillus is correct
 - Aspergillus mostly infects immunocompromised individuals
 - Aspergillus is a very rare species in nature
 - Aspergillus is used to produce malic acid through fermentation
 - Aspergillus do not sporulate
- Enterobius vermicularis is commonly known as
 - roundworm
 - tapeworm
 - pinworm
 - hookworm
- Which of the following statements is **TRUE**?
 - Exotoxin is made up of bacterial cell wall component
 - Endotoxin is heat stable
 - Endotoxin are protein secreted by bacterial cell
 - Cholera produces exotoxin
- Bacteroides are:
 - Gram positive aerobes
 - Are normally found in the gut of health individual
 - Can lead to lung infection
 - Never multiple drug resistant
- Which of the following viruses contain double stranded DNA genome:
 - Virus that causes dengue
 - Virus that causes AIDS
 - Virus that causes SARS
 - Virus that causes herpes
- Histone free DNA produced in laboratory are called
 - recombinant DNA
 - naked DNA
 - oncogenic DNA
 - pathogenic DNA
- In CAR-T therapy
 - T cell from mouse is used
 - T cell from pigs is used
 - T cell from related patients is used
 - T cell from the patient is used

9. Which one of the following is not an additional laboratory design feature in BSL3?
 - a. A hand washing station with hands free control should be present
 - b. The laboratory must be located in non traffic area
 - c. The laboratory should display biohazard warning symbol
 - d. Anteroom doors must be self locking
10. Which of the following statements is **CORRECT**?
 - a. BSCs should be fumigated using glutaraldehyde
 - b. The front and rear grill of the BSCs should not be covered with hand while working
 - c. BSCs must have UV light
 - d. Open flames are allowed in BSC
11. Stomachers:
 - a. Are used to extract and wash intact microbes in solution.
 - b. Are used for drying liquid from gels.
 - c. Are used to clean stomachs of rodents.
 - d. Are very different from homogenizers.
12. Which of the following dose release chlorine the fastest?

a. chloramine	b. sodium hypochlorite
c. chlorine dioxide	d. NaDCC
13. Which of the following is used as a replacement for gravity displacement autoclave?

a. Gravity velocity autoclave	b. Pressure cooker autoclave
c. Steam autoclave	d. Pre vacuum autoclave
14. Which of the following most accurately describes what enters plant cells:

a. Ti plasmid	b. T DNA only
c. T DNA with protein coat	d. T chromosome
15. Which of the following is **CORRECT**?
 - a. Several primary receptacles are placed in one secondary receptacle
 - b. Several tertiary receptacles are placed in one primary receptacle
 - c. Several tertiary receptacles are placed in one secondary receptacle
 - d. Several secondary receptacles are placed in one primary receptacle

SECTION "B"

[10Q.× 0.5 = 5 Marks]

Fill in the blanks.

16. Laboratory _____ is the person who has immediate responsibility for the laboratory.
17. The infective stage of balamuthia mandrillaris are cyst and _____ stages.
18. Pasteurella can produce fowl _____ in chickens and turkeys.
19. Rabdoviridae causes _____ disease.
20. A typical cell banking system consists of a _____ cell bank and working cell bank.

21. Containers for ticks and mites should stand in trays of _____
22. PAPR stands for _____
23. _____ is used in medicine to cut histological slides.
24. Primary chamber temperature in incinerator should be at least _____.
25. In compositional testing GM crops are tested for _____ to non-GM crops.



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F. M. : 55

SECTION "C"

[11Q. × 5 = 55 marks]

Answer *ANY ELEVEN* questions.

1. What are the criteria used for classification of microorganisms into risk groups? How is a specimen with limited information treated? [3 + 2]
2. Write a short note on penicillium marneffeii and trypanosome cruzi. [2.5+2.5]
3. Write a short note on Yersenia pestis. [5]
4. What are intracellular pathogenic bacteria? Describe one such bacterium. [1 + 4]
5. What are genetically engineered viruses and gain of function mutations in viruses? [5]
6. Describe mycotoxin, arthropod toxin and snake venoms. [5]
7. What are allergens? How should they be dealt with in laboratory? [5]
8. Describe the differences between ABSL1, ABSL2, ABSL3 and ABSL4. [5]
9. Draw and describe Class IIA1 BSC. [5]
10. How should centrifuges be operated? [5]
11. Describe alcohols as disinfectants and antiseptics. [5]
12. What are some of the expression vectors that require high level of biosafety consideration? What are some of the precautions that need to be taken while working with transgenic and knock-out animals? [2 + 3]
13. Describe agrobacterium-mediated transformation of plants. [5]

