

KATHMANDU UNIVERSITY  
End Semester Examination  
May/June, 2022

Marks Scored:

Level : B.Tech.

Year : III

Exam Roll No:

Time: 30 mins.

Registration No.:

Course : BIOT 309

Semester : II

F. M. : 20

Date :

SECTION "A"

[15Q. × 1 = 15 marks]

Encircle the most appropriate option among the given choices.

1. Which of the following features is present in BSL4 but not BSL3?
  - a. Room sealable for decontamination
  - b. Double door entry
  - c. Airlock with shower
  - d. Autoclave on site
  
2. Which of the following is present in categorical imperative described by Kant?
  - a. Always act in such a way that you expect everyone to act to you
  - b. Always act in such a way that you can will that everyone act in the same manner
  - c. A moral obligation that applies only if one desires the implicated goal
  - d. A moral obligation to meet the highest possible level of prosperity
  
3. What is the purpose of two-person rule?
  - a. To help the first person carry out a given task with some physical help
  - b. To be able to converse with each other
  - c. To provide highest level of security of important task ahead
  - d. To carry out tasks that require two people
  
4. Which of the following countries was not involved in sequencing in human genome project?
  - a. Japan
  - b. Italy
  - c. France
  - d. Canada
  
5. Which of the following is most correct about class IIB2 BSC?
  - a. The face velocity is 0.36 m/s
  - b. BSC provides personnel protection only
  - c. Seventy percent of the air is recirculated
  - d. The exhaust system is hard ducted
  
6. During fetal development which of the following steps happens last?
  - a. Quickening
  - b. Tissue separation
  - c. Implantation
  - d. 50 days after conception
  
7. Which of the following religions considers it is a duty to produce children?
  - a. Buddhism
  - b. Hinduism
  - c. Islam
  - d. Roman Catholicism

8. How can prions be decontaminated?
- By treating with paraformaldehyde vapor
  - By treating with ultraviolet radiation
  - By treating with sodium DCC solution
  - By treating with formic acid
9. Which of the following statement is **TRUE**?
- Bacteria are almost never BSL4 organisms
  - Viruses are almost never BSL4 organisms
  - Any new pathogen discovered is handled in BSL4
  - Omicron variant can be handled in BSL1
10. Which of the following is **NOT** an example of adult stem cell?
- Neural stem cell that gives rise to astrocyte
  - Epithelial stem cell that gives rise to Paneth cells
  - Muscular stem cell that gives rise to smooth muscle cells
  - Hematopoietic stem cells that give rise to platelets
11. What is the formula of a peracid?
- $\text{CH}_3\text{COOH}$
  - $\text{CH}_3\text{COOOH}$
  - $\text{H}_2\text{O}_2$
  - $\text{CH}_3\text{CHO}$
12. CRY protein containing plant is an example of \_\_\_\_\_.
- Herbicide resistant plant
  - Weed resistant plant
  - Insect resistant plant
  - Insecticide resistant plant
13. In the allogenicity testing of GM crops, \_\_\_\_\_ test is carried out if specific serum screen shows no IgE binding.
- Pepsin resistance test
  - Sequence homology and/or structure similarity test
  - Further development is discouraged
  - Whole protein SDS PAGE
14. Which of the following can be registered or unregistered?
- Patent
  - Copyright
  - Trademark
  - Design
15. What was Harvard mouse?
- It had mutation in tumor suppressor gene
  - It had mutation in oncogene
  - It had mutation in virus receptor
  - It had immune activation

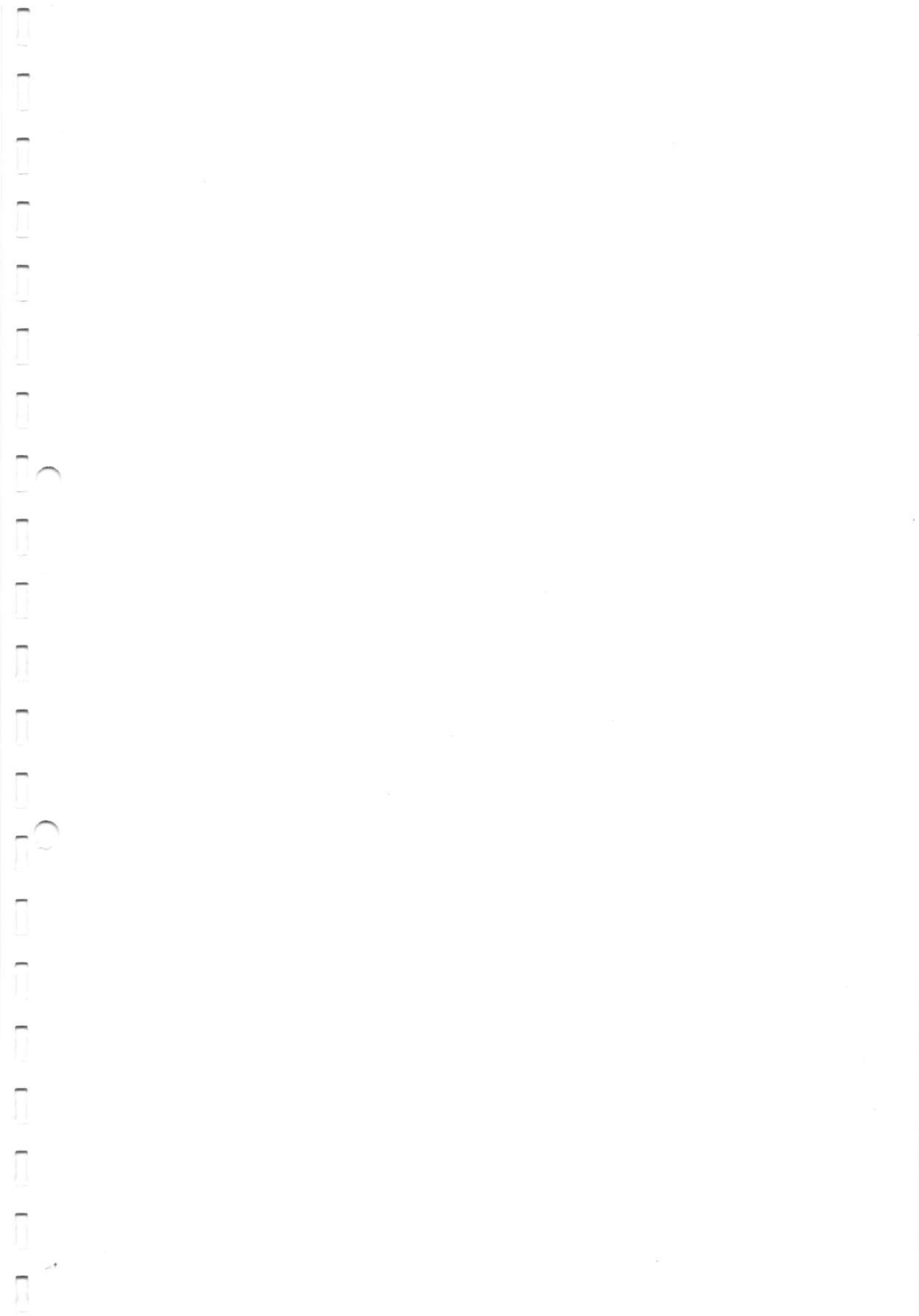
SECTION "B"

[10Q.  $\times$  0.5 = 5 marks]

Fill in the blanks.

16. LAI stands for \_\_\_\_\_.
17. A woman has been killed by a man who previously had confided to a therapist his intention to kill her. Owing to obligations of confidentiality between patient and physician, a psychologist did not report the threat to the women or her family. This case is called the \_\_\_\_\_ case.

18. Suit laboratory is under \_\_\_\_\_ pressure.
19. Under article 14 of the Universal declaration of Human Rights and bioethics everyone should have \_\_\_\_\_ to adequate nutrition and water.
20. Saccharine vapor is discharged to test if the mask is properly suited to an individual user. This test is called \_\_\_\_\_ testing.
21. The scientific name of one of the abortion pills is \_\_\_\_\_.
22. While opening packages special care should be taken while opening broken or \_\_\_\_\_ packages.
23. The temperature in the secondary chamber of incinerator is \_\_\_\_\_.
24. Maize was domesticated from \_\_\_\_\_.
25. The predecessor of World Trade Organization is \_\_\_\_\_.



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Level : B.Tech.  
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Semester : II  
F. M. : 55

SECTION "C"  
[11Q × 5 = 55 marks]

Attempt *ANY ELEVEN* questions.

1. Describe laboratory design and facilities of BSL 1 and 2? [5]
2. What is respect for autonomy? Describe with examples. [5]
3. What is biosecurity? Describe including incidents of biosecurity breach and measures that need to be in place to control biosecurity breach. [5]
4. Julia is an 18-year-old high school senior with a major depressive disorder. A teacher found her sitting in the school bathroom with an unopened bottle of powerful pain medication for which she does not have a prescription. When the teacher tried to speak with her about what is happening, she insisted, "I wasn't going to do anything. Just leave me alone and pretend this never happened." The school psychologist was called in and after evaluation expressed concerns about possible suicidal ideation. Julia, no longer a minor, did not want her parents called and would not commit to seeing her regular doctor, but reluctantly agreed to see you, a family practitioner certified in adolescent medicine, recommended by the school psychologist. Julia is surly but articulate. She claims treatment for her depression has always caused symptoms worse than the depression, and refuses to consider additional diagnostic tests or treatment options. She insists that though "everyone sometimes thinks of ending it" she wasn't seriously considering suicide.  
How would you handle the situation? [5]
5. 4. Write a short note on class III BSC. How are BSCs selected? [3+2]
6. 5. You became a law minister of a newly established country. Your country is very strictly in favor of banning abortion. Describe cases where it particularly difficult to decide not to allow abortion. [5]
7. 6. What do engineered syringes look like? Describe the use of centrifuges. [2+3]
8. 7. What is the difference between animal rights and animal welfare? Describe the three Rs of animal experimentation? [2+3]
9. 8. Describe the role of chloramine and chlorine dioxide as disinfectants. [5]
10. 9. In the documentary "The world according to Monsanto" what is transgenic contamination? [5]
11. 10. What are compulsory licenses? Describe. [5]
12. 11. Describe the patent process in Nepal. [5]
13. 12. Describe triple layer packaging. [5]

