

KATHMANDU UNIVERSITY
End Semester Examination [C]
April/May, 2023

Marks Scored:

Level : B.Tech.

Year : I

Exam Roll No. :

Time: 30 mins.

Course : BIOT 101

Semester : II

F. M. : 20

Registration No.:

Date 04 APR 2023

SECTION "A"

[10Q. × 0.5 = 5 Marks]

Choose and mark [X] in the most appropriate answer box.

- One similarity between enzymes and hormones is that
 Both are proteins Both are used in minute amount
 Both can be used again and again Both act at a particular pH
- The biofertilizers are
 Anabaena and *Azolla* Fertilizers produced by Biotechnology
 Actinomycetes Quick growing crop ploughed under soil
- Enzymes employ their active sites to catalyze biochemical reactions. How do enzymes accelerate the rate of enzyme catalyzed reactions?
 Reducing the activation energy of reactants
 Formation of enzyme-substrate complex
 Modification of active sites
 Denaturation of enzyme after it acts on the substrate
- Glyphosate, an organophosphorous, is considered to be a potential-
 Pesticide Insecticide
 Plant growth promoting hormone Herbicide
- The RNA that picks up specific amino acid from amino acid pool in the cytoplasm to ribosome during protein synthesis is called
 mRNA rRNA RNA itself tRNA
- A bad cholesterol clogs the arteries and can lead to coronary heart diseases. What is the short form of the bad cholesterol?
 HDL Both HDL and LDL
 LDL LDL and PUFA
- Arginine is
 Acidic amino acid Heterocyclic amino acid
 Aromatic amino acid Basic amino acid
- Which of the following polysaccharides is probably the most abundant organic substance on earth?
 Chitin Cellulose Starch Inulin
- Which among the following is preferred to obtain virus free plants?
 Micropropagation Shoot tip culture
 Seed culture Grafting
- Abnormal gene is replaced by normal gene through
 Cloning Radiation Medicines Gene therapy

SECTION "B"
[5Q × 1 = 5 Marks]

Fill in the blanks.

11. The number of population doublings that a culture has undergone since explanation is
12. Plants derived sexually from the same plant are..... while those derived from somatic tissue from the same plants are.....
13. Cloning vector is.....
14. The delayed ripening tomato was created by Biotechnology who... ..a gene.
15. The common solidifying agent used in micropropagation is.....

SECTION "C"
[10Q × 1 = 10 Marks]

Define in *one* sentence.

16. Biosafety guidelines
17. Polymerase Chain Reaction
18. Cryopreservation
19. IPRs
20. Metablome
21. Anomeric Carbon
22. Bt crops
23. Transgenic organism
24. mRNA
25. CRISPR

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End Semester Examination [C]
April/May, 2023

04 APR 2023
Course : BIOT 101
Semester : II
F.M. : 55

Level : B.Tech.
Year : I
Time : 2 hrs. 30 mins.

SECTION "B"
[4Q × 7 = 28 marks]

Attempt ALL questions.

1. Describe the similarities and differences between the cell walls of acid fast and Gram-negative bacteria with figure.
2. Explain bacterial transformation with emphasis Griffith's experiment.
3. What is growth curve? Compare and contrast the growth curve of batch culture and continuous culture.
4. Define immunity. Explain different types of non-specific defense mechanism of our body.

OR

What is immune response? Describe the different types of immunity with examples.

SECTION "C"
[27 marks]

Attempt ALL questions.

5. Briefly describe the nature and function of plasmid. [3]
6. Define the given media with their uses: semi solid media, transport media and differential media. [3]
7. Draw graphs showing the relationship between temperature and growth rate for each of the following types of bacteria: psychrophilic, mesophilic, thermophilic. [3]
8. Give the possible outcomes of mating between the following strains of *E. coli*. [2×2=4]
 - a. Hfr X F-
 - b. F+ X F-
9. Distinguish between : [2×2=4]
 - a. Exotoxin and endotoxin
 - b. Thermal death time and thermal death point
10. Give the significance of choice of an organism in a fermentation process. [3]
11. You make 1/10,000 dilutions of an unknown concentration. If you spread 1/10 ml of the dilution onto a plate, and 60 colonies grow after incubation. Find the original concentration of bacteria? [3]
12. Short notes on ANY TWO. [2×2=4]
 - a. Virulence factor
 - b. Yeast
 - c. Binomial nomenclature

1971

1972

1973

1974