

KATHMANDU UNIVERSITY  
End Semester Examination  
February/March, 2018

Marks scored:

Level : B.Sc. / B. Pharm./ B. Tech.  
Year : I

Course : BIOL 101  
Semester : I

Exam Roll No. :

Time : 30 mins.

FM : 20

Registration No. :

Date MAR 12 2018

SECTION "A"

[10 Q. × 0.5 = 5 marks]

Choose and tick [✓] the most appropriate answer.

- O<sub>2</sub> evolution is directly associated with  
 PSI                       PSII                       Phycocyanin                       Phytochrome
- The amount of energy released during hydrolysis of a high energy bond of ATP is  
 73Kcal/mol                       0.73Kcal/mol                       3.4Kcal/mol                       32Kcal/mol
- Secretin stimulates production of  
 saliva                       gastric juice                       pancreatic juice                       bile
- Virus free plants can be produced from  
 callus culture                       embryoid culture  
 root apex culture                       shoot apex culture
- Supersonic jets cause pollution by thinning the layer of  
 SO<sub>2</sub>                       O<sub>2</sub>                       CO<sub>2</sub>                       O<sub>3</sub>
- One of the *ex situ* conservation methods for endangered species is  
 wildlife sanctuaries                       biosphere reserves  
 cryopreservation                       national parks
- A brown eyed couple has blue eyed child. The trait of brown eye (B) is dominant over that of blue eyed (b). What is the genotype of the couple?  
 BbXBb                       BBXBB                       BBXBb                       BBXbb
- Which one of the following is used in industrial preparation of ethanol?  
 *Lactobacillus*                       *Azotobacter*                       *Saccharomyces*                       *Penicillium*
- Quiescent center is located in  
 shoot                       root                       ground tissue                       epidermal tissue
- The Nisslgranules of nerve cells are made up of  
 ribosome                       protein                       DNA                       mitochondria

SECTION "B"

[5Q. × 1 = 5 marks]

Fill in the blanks:

- Biodiversity increases from the.....to the equator.
- In meiosis, haploid condition is reached by.....

13. The genotype of B-group father of an O- group child would be.....
14. The first transgenic crop was.....
15. Increase in the concentration of toxic materials at each trophic level of a food chain is known as.....

SECTION "C"  
[10Q. × 1=10 marks]

Define in *one* sentence:

16. Cell- cell interaction:
17. Binomial Nomenclature:
18. Oxidative phosphorylation:
19. Periderm:
20. Linkage:
21. Gastrula:
22. Biopiracy:
23. Spawning:
24. Eutrophication:
25. Bioethics:

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

Course : BIOL 101  
Semester: I  
F. M. : 55

SECTION "D"

(Long answer questions)

[3Q. × 7=21 marks]

1. Work out a dihybrid cross between homozygous round yellow and wrinkled green seeds in *Pisum sativum* through two generations using as Punnett square. Give the dihybrid phenotype and genotype ratio.
2. What do you understand by photosynthesis? Describe the light dependent steps of photosynthesis. How are they linked to the dark reactions?
3. What is fermentation? Describe the basic steps of fermentation and its applications in industries.

OR

How is secondary thickening accomplished in stems of woody Angiosperms? What is its significance?

SECTION "E"

(Short answer questions)

4. Write short notes on: [6 Q. × 4 = 24]
  - a. Maturation Promoting Factor
  - b. Embryogenesis in dicots
  - c. Population ecology
  - d. Vaccine production
  - e. Herbarium techniques
  - f. Micropropagation
5. Give *TWO* major differences between: [2 Q. × 2 = 4]
  - a. Plant and animal cytokinesis
  - b. Habitat and niche
6. Explain why/how for the following: [3 Q. × 2 = 6]
  - a. Fermentation yields less energy than aerobic respiration.
  - b. Dark reaction occurs at night in the stroma of chloroplast.
  - c. Man cannot digest cellulose but symbiotic microorganisms can.

