

# Question Paper

Exam Date & Time: 25-Nov-2023 (02:00 PM - 05:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER B.Sc. BIOTECHNOLOGY DEGREE EXAMINATION-NOVEMBER / DECEMBER 2023  
SUBJECT: BBT 101 - BASICS OF BIOTECHNOLOGY  
(OBE 2023 REGULATION - REGULARS)

Answer ALL questions.  
Illustrate where necessary.

Marks: 60

Duration: 180 mins.

- |     |  |      |
|-----|--|------|
| 1A) | What is the full form of GLP? What is its main goal?                                       | (1)  |
| 1B) | Define Bt cotton and add one advantage.  | (1)  |
| 1C) | What is the causal organism of botulism?   | (1)  |
| 1D) | What are vaccines?   | (1)  |
| 1E) | Define Rhizofiltration   | (1)  |
| 1F) | Expand the term HACCP.   | (1)  |
| 2A) | Write the principles of GMP.   | (4)  |
| 2B) | Classify genome variation.   | (4)  |
| 2C) | Explain briefly on marine natural products and add a note on their applications.           | (4)  |
| 2D) | Explain the nanotechnology application in cancer diagnosis and treatment.                  | (4)  |
| 2E) | Explain the procedure and processes involved in obtaining a patent.                        | (4)  |
| 2F) | Describe different phases of biotechnology with examples.                                  | (4)  |
| 3A) | Highlight the objectives of organic farming and explain the benefits of the same.          | (10) |
| 3B) | Define Biosafety. Add a note on applications of biosafety and Commercially available GMOs. | (10) |
| 3C) | Give a brief note on growth kinetics of microorganism.                                     | (10) |

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# Question Paper

Exam Date & Time: 04-Dec-2023 (02:00 PM - 05:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER B.Sc. BIOTECHNOLOGY DEGREE EXAMINATION-NOVEMBER / DECEMBER 2023

SUBJECT: BBT 103 - BIOLOGY I  
(OBE 2023 REGULATION - REGULARS)

Answer ALL questions.  
Illustrate where necessary.

Marks: 60

Duration: 180 mins.

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|-----|--|------|
| 1A) | Write significance of tagmatization.   | (1)  |
| 1B) | What are diploblastic animals?   | (1)  |
| 1C) | Write the scientific name of dog.  | (1)  |
| 1D) | Name the extra-embryonic membranes.  | (1)  |
| 1E) | What type of feather gives shape and color to the birds?                               | (1)  |
| 1F) | Define epitoky.  | (1)  |
| 2A) | Explain the structure and function of various types of cells present in sponges.       | (4)  |
| 2B) | Write the differences between protostomes and deuterostomes.                           | (4)  |
| 2C) | Explain the life cycle of <i>Fasciola hepatica</i> .                                   | (4)  |
| 2D) | With suitable illustration describe the water vascular system in star fish.            | (4)  |
| 2E) | Note on different types of scales in fishes.   | (4)  |
| 2F) | Briefly explain the process of conjugation in <i>Paramecium</i> .                      | (4)  |
| 3A) | Write the general features of phylum Mollusca.   | (10) |
| 3B) | Describe the general characters of class Mammalia. Add a note on dentition in mammals. | (10) |
| 3C) | List out the general characteristics of class Aves. Add a note on flightless birds.    | (10) |

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# Question Paper

Exam Date & Time: 02-Dec-2023 (02:00 PM - 05:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER B.Sc. BIOTECHNOLOGY DEGREE EXAMINATION-NOVEMBER / DECEMBER 2023

SUBJECT: BBT 105 - BIOLOGY II  
(OBE 2023 REGULATION - REGULARS)

Marks: 60

Duration: 180 mins.

Answer all the questions.

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|-----|--|------|
| 1A) | What are antitranspirants?   | (1)  |
| 1B) | Differentiate transpiration and guttation.   | (1)  |
| 1C) | Stalk of a leaf is called?   | (1)  |
| 1D) | Agar Agar is obtained which type of plants? Name them.   | (1)  |
| 1E) | Name the causative organism of Citrus Canker   | (1)  |
| 1F) | Ploidy level of integuments  | (1)  |
| 2A) | Give an account of Embden, Mayerhof and Parnas (EMP) pathway.                                    | (4)  |
| 2B) | Explain the cyclic and non-cyclic photophosphorylation.  | (4)  |
| 2C) | Explain the role of microorganisms in modulating allelopathic effects operational between plants | (4)  |
| 2D) | Explain the role of phenolic compounds in plants   | (4)  |
| 2E) | Functional importance of Gibberellins in plants  | (4)  |
| 2F) | What is a phytoanticipin? Give examples  | (4)  |
| 3A) | Narrate the carbon concentrating mechanisms in C4 photosynthetic pathway with suitable example.  | (10) |
| 3B) | Explain the types of ovules in plants with a neat labelled diagram                               | (10) |
| 3C) | Explain the life cycle of TMV in plants and symptoms that it causes                              | (10) |

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# Question Paper

Exam Date & Time: 27-Nov-2023 (02:00 PM - 05:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER B.Sc. BIOTECHNOLOGY DEGREE EXAMINATION-NOVEMBER / DECEMBER 2023

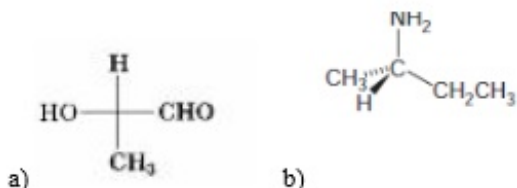
SUBJECT: BBT 107 - CHEMISTRY  
(OBE 2023 REGULATION - REGULARS)

Answer ALL questions.  
Illustrate where necessary.

Marks: 60

Duration: 180 mins.

- 1A) Define Lux Flood Acid and Base. Give example. (1)  
1B) Give mathematical formula of Arrhenius equation and give its significance. (1)  
1C) Determine the configuration of asymmetric carbon atom (1)



- 1D) Define Buffer capacity. (1)  
1E) Give an example for aqueous phase reaction. (1)  
1F) Define first law of thermodynamics. (1)  
2A) Give definition and example for these terms (4)  
i) meso compound  
ii) Diastereomer  
iii) Enantiomer  
iv) E and Z isomers  
2B) Explain the determination of order of a reaction (any two methods) (4)  
2C) Explain steric and electronic parameters used in QSAR (4)  
2D) Discuss hydrolysis of salt of weak acid and strong base. Derive an equation for hydrolysis constant, degree of hydrolysis and pH of the hydrolysed salt solution and also derive the relationship between  $K_h$ ,  $K_a$  and  $K_w$  (4)  
2E) Derive an expression for Joule Thomson coefficient and inversion temperature of a van der Waals gas. (4)  
2F) Write a note on applications of metals in medicine. (4)  
3A) Explain Pearson HSAB concept of acids and bases with any four applications (10)  
3B) Discuss the analysis of oils (any four properties) with experimental procedure for determination of any two parameter (10)  
3C) Discuss the following green preparations with two examples each (10)  
i) Ionic Liquids  
ii) Phase transfer catalyst

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# Question Paper

Exam Date & Time: 29-Nov-2023 (02:00 PM - 05:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST SEMESTER B.Sc. BIOTECHNOLOGY DEGREE EXAMINATION-NOVEMBER / DECEMBER 2023

SUBJECT: BBT 109 - COMPUTER SCIENCE

(OBE 2023 REGULATION - REGULAR)

Answer ALL questions.

Illustrate where necessary.

Marks: 60

Duration: 180 mins.

Answer all the questions.

- 1A) Mention any two drawbacks with using frames. (1)
- 1B) Differentiate between chomp() and chop() functions in PERL. (1)
- 1C) What is the role of an image on the web? (1)
- 1D) List any four features of linux operating system. (1)
- 1E) Write the syntax for IF function in excel. (1)
- 1F) List any two advantages of Spooling operation. (1)
- 2A) Add a note on fourth generation computers. (4)
- 2B) Add a note on the following HTML form attributes. (4)
- i) The target attribute
- ii) The method attribute
- 2C) What are subroutines? Explain any 5 advantages of subroutines. (4)
- 2D) Explain with an example, the various looping statements in PERL. (4)
- 2E) What is an operating system? Explain the components of Linux operating system. (4)
- 2F) What is a pivot table in excel? List out its uses. (4)
- 3A) **Write a note on :** (10)
- i) Memory Management
- ii) Process Management
- iii) Device Management
- iv) File Management
- v) Security in Operating System
- 3B) Explain with an example, the various HTML Input types. (10)
- 3C) Write a note on components of computer system. (10)

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