



Roll No:

1901430540041

BTECH
(SEM VI) THEORY EXAMINATION 2021-22
FOOD BIOTECHNOLOGY

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

2 x 10 = 20

Qno.	Question	Marks	CO
a.	Define pasteurization.	2	
b.	What do you meant by probiotics?	2	
c.	Define single cell protein. Give two examples of single cell protein.	2	
d.	What do you meant by dehydrated foods?	2	
e.	What are the metabolically injured organisms?	2	
f.	Give two examples of flavor enhancers.	2	
g.	Define irradiation.	2	
h.	Define Radurization.	2	
i.	Enlist the name of four food borne disease.	2	
j.	What do you meant by starter culture?	2	

SECTION B

2. Attempt any three of the following:

10x3=30

a.	Describe the extrinsic parameters of foods that affect microbial growth.	10	
b.	What do you understand by fermented food products? Give the application of fermented milk.	10	
c.	Give the mechanism for enumeration and detection of microorganisms.	10	
d.	Describe the effect of irradiation on food quality and its shelf life.	10	
e.	Briefly describe the food borne mycotoxins.	10	

SECTION C

3. Attempt any one part of the following:

10x1=10

a.	What do you meant by unit operation? Give the principle and application of autoclave.	10	
b.	Describe the role and significance of microorganisms in foods.	10	

4. Attempt any one part of the following:

10x1=10

a.	Give the flow diagram for the production beer.	10	
b.	What is beta glucan problem? How this problem could be control with the help of food biotechnology?	10	

5. Attempt any one part of the following:

10x1=10

a.	Describe the preservation technology for dairy products.	10	
b.	What do you meant by air sampling? Describe the method and importance of air sampling.	10	

6. Attempt any one part of the following:

10x1=10

a.	Briefly explain the aseptic packaging.	10	
b.	Write a short note on i. Thermo-ultrasonication ii. Food preservation	10	

7. Attempt any one part of the following:

10x1=10

a.	Describe the indicators of food microbial quality in detail.	10	
b.	Give the full form of HACCP in HACCP system. Discuss HACCP system.	10	



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1901430540041

BTECH
(SEM VI) THEORY EXAMINATION 2021-22
INDIAN TRADITION, CULTURE & SOCIETY

Time: 3 Hours

Total Marks: 100

Note: Attempt all Sections. If you require any missing data, then choose suitably.

SECTION A

1. Attempt all questions in brief.

2*10 = 20

Q.no	Questions	Marks	CO
(a)	What do you mean by Society?	2	1
(b)	Discuss a short note on Indian Traditions.	2	1
(c)	Briefly discuss about Indian Literature.	2	2
(d)	Briefly discuss about Indian Tradition.	2	2
(e)	Discuss a short note on Indian Religion.	2	3
(f)	Write a short note on Modern religious practices.	2	3
(g)	Write a short note on Science and Management.	2	4
(h)	Write a short note on Indian Knowledge System.	2	4
(i)	Write a short note on Cultural Heritage.	2	5
(j)	Discuss a short note on Performing Arts.	2	5

SECTION B

2. Attempt any three of the following:

10*3 = 30

Q.no	Questions	Marks	CO
(a)	Discuss about the concept of Stages of State Formation in Ancient India.	10	1
(b)	Discuss about the concept of Council of Ministers Administration.	10	2
(c)	Describe about the Harappan Script and Brahmi Script under the Indian Literature.	10	3
(d)	Describe about the concept of Astronomy in India.	10	4
(e)	Discuss about the concept of Engineering and Architecture in Ancient India.	10	5

SECTION C

3. Attempt any one part of the following:

10*1 = 10

Q.no	Questions	Marks	CO
(a)	Discuss about the role of Engineering and Architecture in Ancient India.	10	5
(b)	Discuss about the Indian Vedas and the Upanishads.	10	2

4. Attempt any one part of the following:

10 * 1 = 10

Q.no	Questions	Marks	CO
(a)	Give a description about the Seven Limbs of the State.	10	1

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INDIAN TRADITION, CULTURE & SOCIETY

(b)	Give a description about the Bhakti Movement under the Indian Religion, Philosophy and Practices.	10	3
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5. Attempt any one part of the following:

10*1 = 10

Q.no	Questions	Marks	CO
(a)	Write briefly about any two of the following: (i) Medicine in India (ii) Metallurgy in India (iii) Traditional Changes in India	10	4
(b)	Give a description about Sculptures and coins under the Indian Cultural Heritage.	10	5

6. Attempt any one part of the following:

10*1 = 10

Q.no	Questions	Marks	CO
(a)	Discuss in detail about any one Indian Literature of the following: (i) The Ramayana (ii) The Mahabharata	10	2
(b)	Write a description about Understanding Gender as a Social category.	10	1

7. Attempt any one part of the following:

10*1 = 10

Q.no	Questions	Marks	CO
(a)	Give a description about the Socio religious reform movement of 19 th century.	10	3
(b)	Give a description about the Water Management and Textile Technology in India.	10	4



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BTECH
(SEM VI) THEORY EXAMINATION 2021-22
PLANT BIOTECHNOLOGY

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A**2 x 10 = 20**

1. Attempt all questions in brief.

Qno.	Question	Marks	CO
a.	What do you understand by totipotency?	2	
b.	What are the cybrids?	2	
c.	What is recalcitrant?	2	
d.	Define germiclonal variation.	2	
e.	Enlist the role of auxin in plant.	2	
f.	What is the role of provitamin A in plants?	2	
g.	What is flower pigmentation?	2	
h.	What are the cryoprotectant agents?	2	
i.	Define polyhaploids.	2	
j.	What do you meant by rhizogenesis?	2	

SECTION B**10x3=30**

2. Attempt any three of the following:

Qno.	Question	Marks	CO
a.	What are the different methods of sterilization? Give the importance of sterilization.	10	
b.	Describe plant growth regulators along with its examples.	10	
c.	Explain the relationship between organogenesis and embryogenesis.	10	
d.	Describe the development of insect, diseases and herbicide resistance in plants.	10	
e.	Explain the protoplast isolation, purification and culture in detail.	10	

SECTION C**10x1=10**

3. Attempt any one part of the following:

Qno.	Question	Marks	CO
a.	Explain the organization of plant tissue culture laboratory. What are the precautions should kept in consideration during establishment of plant tissue culture laboratory?	10	
b.	Explain the cell suspension culture in detailed.	10	

4. Attempt any one part of the following:

10x1=10

Qno.	Question	Marks	CO
a.	What is embryogenesis? Explain the somatic embryogenesis with various stages of embryo development?	10	
b.	What is cryopreservation? Explain the mechanism behind this technique. Enlist the applications of cryopreservation.	7	



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PLANT BIOTECHNOLOGY

5. Attempt any one part of the following: 10x1=10

Qno.	Question	Marks	CO
a.	What do you understand by haploid plants? Discuss any one haploid production technique?	10	
b.	What is embryo rescue and its types with diagram in detail?	10	

6. Attempt any one part of the following: 10x1=10

Qno.	Question	Marks	CO
a.	What do you understand by micropropagation? Discuss the different stages of micropropagation. Also describe its applications.	10	
b.	What do you meant by nutrient media? Explain the composition of commonly used nutrient media.	10	

7. Attempt any one part of the following: 10x1=10

Qno.	Question	Marks	CO
a.	What is genetic transformation? Explain its mechanism and importance.	10	
b.	Describe artificial seed technology with its applications.	10	



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BTECH
(SEM VI) THEORY EXAMINATION 2021-22
BIOINFORMATICS -II

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

Q.no	Questions	Marks	CO
a.	Define the term bioinformatics.	2	
b.	Write a short note on "Biological databases" with example.	2	
c.	What do you understand by "phylogenetic tree"? Define it with suitable database.	2	
d.	What is Human genome project? Define it.	2	
e.	What do you understand by ORF? Define it.	2	
f.	Define parametric & non-parametric tests of machine learning as a part of bioinformatics.	2	
g.	What is NLP? Define it.	2	
h.	Write down the full form of:- OMIM & SCOP	2	
i.	Write down any 04 applications of bioinformatics in different fields.	2	
j.	What do you understand by Pharmacogenomics? Define it.	2	

SECTION B

2. Attempt any three of the following:

Q.no.	Questions	Marks	CO
a.	What do you understand by Protein structure prediction? Describes in detail.	10	
b.	Briefly explain basic concept of force field in molecular modeling (potential energy calculation) in detail.	10	
c.	Briefly discuss about artificial neural network as a part of machine learning in detail.	10	
d.	Explain the basic concept of Insilico drug designing. Also discuss major steps used in Drug designing process.	10	
e.	Briefly explain the basic concept of RNA structure predictions and its limitations in detail.	10	



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BIOINFORMATICS -II**

SECTION C

3. Attempt any one part of the following:

Q no.	Questions	Marks	CO
a.	What do you understand by Biological network identification? Discuss it in detail.	10	
b.	Briefly explain Hidden markov model as a part of machine learning in detail.	10	

4. Attempt any one part of the following:

Q no.	Questions	Marks	CO
a.	What do you understand by next generation sequencing? Discuss it in detail.	10	
b.	Briefly explain Lipinski's rule of five in detail.	10	

5. Attempt any one part of the following:

Q no.	Questions	Marks	CO
a.	Briefly explain the features of RNA secondary structure. Also discuss different secondary structure prediction methods with suitable diagrams in detail.	10	
b.	What do you know about microarray data analysis? Explain in detail.	10	

6. Attempt any one part of the following:

Q no.	Questions	Marks	CO
a.	What is QSAR Modeling? Explain it in brief.	10	
b.	Explain the protein function prediction methods in detail.	10	

7. Attempt any one part of the following:

Q no.	Questions	Marks	CO
a.	What do you understand by Pharmacodynamics & Pharmacokinetics? Explain it in detail.	10	
b.	What do you know about computer simulation techniques? Explain different types of computer simulation techniques in detail.	10	



BTECH
(SEM VI) THEORY EXAMINATION 2021-22
BIOPROCESS ENGINEERING -II

Total Marks: 100

Time: 3 Hours

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.		2 x 10 = 20	
Qno.	Question	Marks	CO
a.	Discuss diauxic growth curve of microorganisms.	2	
b.	Explain Yield coefficient.	2	
c.	Give Monod equation for specific growth rate.	2	
d.	Discuss HEPA filters with its use.	2	
e.	Discuss the term KL in KLa.	2	
f.	How doubling time can be related to the specific growth rate?	2	
g.	Differentiate between theoretical yield and observed yield.	2	
h.	Explain OTR.	2	
i.	Discuss wash out condition.	2	
j.	Enlist indirect methods for quantitative estimation of microbial growth.	2	

SECTION B

2. Attempt any three of the following:		10x3=30	
a.	Discuss growth of Mold and other filamentous organisms. Explain kinetics and dynamics of pellet formation.	10	
b.	Comment upon heat generation by microbial growth.	10	
c.	What do you understand by sterilization? Discuss the advantages and disadvantages of batch and continuous sterilization of liquid media.	10	
d.	Comment upon ideal reactor operations. Discuss batch operation of a mixed bioreactor.	10	
e.	Discuss the kinetics of cell death of bacterial spores.	10	

SECTION C

3. Attempt any one part of the following:		10x1=10	
a.	Enlist the factors affecting cellular oxygen demand.	10	
b.	What do you understand by Scale up? Discuss physical and biological concepts of Scale up.	10	
4. Attempt any one part of the following:		10x1=10	
a.	Discuss the factors that affect oxygen transfer to microorganisms in bioreactor.	10	
b.	What are bioreactors? Discuss CSTR with recycle and wall growth.	7	
5. Attempt any one part of the following:		10x1=10	
a.	What are filters? Discuss the design of depth filters with their application.	10	
b.	Describe the expression for specific growth rate, metabolic quotient and doubling time.	10	
6. Attempt any one part of the following:		10x1=10	
a.	Describe the method of determination of K _{1a} by oxygen balance method.	10	
b.	Comment upon critical dilution rate.	10	
7. Attempt any one part of the following:		10x1=10	
a.	Comment upon PID controllers.	10	
b.	Comment upon Artificial neural network based controller	10	



Roll No: 1901430540029

BTECH
(SEM VI) THEORY EXAMINATION 2021-22
IDEA TO BUSINESS MODEL

Time: 3 Hours

Total Marks: 100

Note : Attempt all Sections. If require any missing data; then choose suitably

SECTION A

1. **Attempt all questions in brief.** **2x10 = 20**
- a. Define enterprise. CO1
 - b. What do you understand by modal? Explain. CO1
 - c. What do you mean by Entrepreneurship? Explain. CO2
 - d. Define EDP. CO2
 - e. What is a product? Explain. CO3
 - f. Define creativity. CO3
 - g. How will you define risk? Explain. CO4
 - h. What do you mean by personnel selling? CO4
 - i. Define idea. CO5
 - j. What do you mean by business? CO5

SECTION B

2. **Attempt any three of the following:** **10x3 = 30**
- a. How to choose a product idea? Explain. Also discuss about the product innovation. CO1
 - b. Discuss the difference between entrepreneurship and wage employment with an example. CO2
 - c. What are the Competencies required to become an entrepreneur? Discuss in detail. CO3
 - d. Write a note the sustainability of the business enterprise. CO4
 - e. Discuss the importance of communication system in building a business model. CO5

SECTION C

3. **Attempt any one of the following:** **10x1 = 10**
- a. Discuss the production planning and development strategies in detail. CO1
 - b. Write a note on a new product idea with the help of an example. CO1
4. **Attempt any one of the following:** **10x1 = 10**
- a. What are the various functions of an entrepreneur? Discuss. CO2
 - b. Describe various challenges to entrepreneurship with proper example. CO2
5. **Attempt any one of the following:** **10x1 = 10**
- a. What do you understand by the process and evaluation of EDP? Discuss. CO3
 - b. Write a note on creative and design thinking with suitable example. CO3
6. **Attempt any one of the following:** **10x1 = 10**
- a. What do you mean by production system? Discuss various types of production systems? CO4
 - b. Discuss the various steps of production planning and control. CO4
7. **Attempt any one of the following:** **10x1 = 10**
- a. What are the various challenges in communication? Discuss with an example. CO5
 - b. Write a detailed note on personal selling. CO5



BTECH
(SEM VI) THEORY EXAMINATION 2021-22
ENTREPRENEURSHIP IN BIOTECHNOLOGY

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

2 x 10 = 20

Q no.	Question	Marks	CO
a.	What is PLI scheme? When it was launched.	2	
b.	Describe the behavior of a biotechnology entrepreneur.	2	
c.	Discuss the factors which boost bio-technological revolution.	2	
d.	Chat about the representative business model related to tissue engineering.	2	
e.	Create a questionnaire which may help to estimate the value of biotechnology business ideas.	2	
f.	What is break - even analysis? Describe its significance.	2	
g.	Who are (i) Angel (ii) Anchor investors?	2	
h.	Write down about three government organizations involved in promoting biotechnology industry.	2	
i.	Comment on new biotechnology policy 2017-2022.	2	
j.	What do you understand by a CRO.	2	

SECTION B

2. Attempt any three of the following:

10x3=30

a.	Discuss the two case studies of successful biotechnology entrepreneur.	10	
b.	Portray a flow chart showing different parameters require to manage a biotechnology project/industry.	10	
c.	Describe the desirables in setting up a biotech industry based on bio-similar.	10	
d.	How will you get seed funding from venture capitalist? Justify your answer.	10	
e.	Comment on ethical dilemmas in biotechnology industry.	10	

SECTION C

3. Attempt any one part of the following:

10x1=10

a.	Explain in details on the attributes, a biotech entrepreneur should have.	10	
b.	Illustrate the types, nature and significance of entrepreneurship.	10	

4. Attempt any one part of the following:

10x1=10

a.	What is the importance of network analysis and how it may play role in project appraisal?	10	
b.	Describe in detail, the factors which may influence the biotech industry	10	

5. Attempt any one part of the following:

10x1=10

a.	Designate the different business models related to biotechnology.	10	
b.	Explain the various parameter of budgeting and how will you analyze profitability.	10	

6. Attempt any one part of the following:

10x1=10

a.	What are the principals of effective communication?	10	
b.	Remark on organizational behavior.	10	

7. Attempt any one part of the following:

10x1=10

a.	Explain the different IPR constraints of Biotech industry.	10	
b.	If you want to explore the export possibilities for your Clinical research organization, What you will take in consideration? Describe briefly	10	