ATMIYA UNIVERSITY
(Established under the Gujarat Private University Act 11, 2018)
Yogidham Gurukul, Kalawad Road, Rajkot - 360005, Gujarat (INDIA)

Department of Biotechnology

M.Sc. Biotechnology
Semester-2

Academic Year 2024

Instrumentation and Techniques - Assignment-1

Submission Date: 25 February, 2024

Resource: Library, E-Resources, Class note

Assignment Task-1

ATMIYA UNIVERSITY
M.Sc. Biotechnology Semester – I

Name of the Faculty: Regini ma'am Course: Instrumentation & tech.

Date	Topic
26/02/2024	classification of electrophoresis.
26/02/2024	practical - seperation of pigment based on density.

S.No.	Enrol No	Name	26/02.	Practical	Practical 26/02	
1	220621031	Vasani Priya		✓✓	Fluorescent	Fluorescent microscopy.
2	230621001	Dave Disha		✓✓		SEM
3	230621002	Dholariya Heni		✓✓		Flow cytometry
4	230621003	Jarsaniya Krushikumar		?		AES
5	230621004	Kava Devarsh		✓		FTIR / Raman
6	230621005	Kirtana Kanji	Ab	Ab	Ab	HPLC
7	230621006	Krupali Chavda		✓✓		Analytical Ultracentrifuge
8	230621007	Makadia Hetvi	⊙	✓✓	⊙	PAGE (SDS).
9	230621008	Makasna Janviben	Ab	✓✓	Ab	Adsorption / Ion Exchange
10	230621009	Modi Kinjal		✓✓		Reverse phase / Partition
11	230621010	Naiya Jayveer Rajeshbhai	.	?		HPTLC / TLC.
12	230621011	Payal Sharma	.	✓✓		XRD / crystallography.
13	230621012	Raval Ankitaben Pankajbhai	.	✓✓		Polarizing microscope
14	230621013	Rozivadiya Vacha Hirenbhai	Ab	✓✓	Ab	TEM.
15	230621014	Rupala Suchitkumar Ashvinbhai	Ab	?	Ab	UV visible
16	230621015	Sarvaiya Pratikkumar Hareshbhai	.	✓✓		CD / ORD.
17	230621016	Trivedi Khubi Bhaveshbhai	.	✓✓		PAGE (native / gradient)
18	230621017	Trivedi Malvika Pratik	Ab	?	Ab	Affinity / Hydrophobic interaction
19	230621018	Vaghela Hinaben Laljibhai	.	✓✓		Preparative centrifuge
20	230621019	Vajapara Brinjaben Lakhabhai	.	✓✓		GC
21	230621020	Vara Trusha Maheshbhai	Ab	✓✓	Ab	NMR.
22	230621021	Zinzuvadia Kishan	Ab	?	Ab	AAS.
23		Sneha Mungra	.	✓✓		AFM.
24		Niral Jivani	Ab	✓✓		Confocal microscope.
25		Raj Matang	.	?		Phase contrast microscope.

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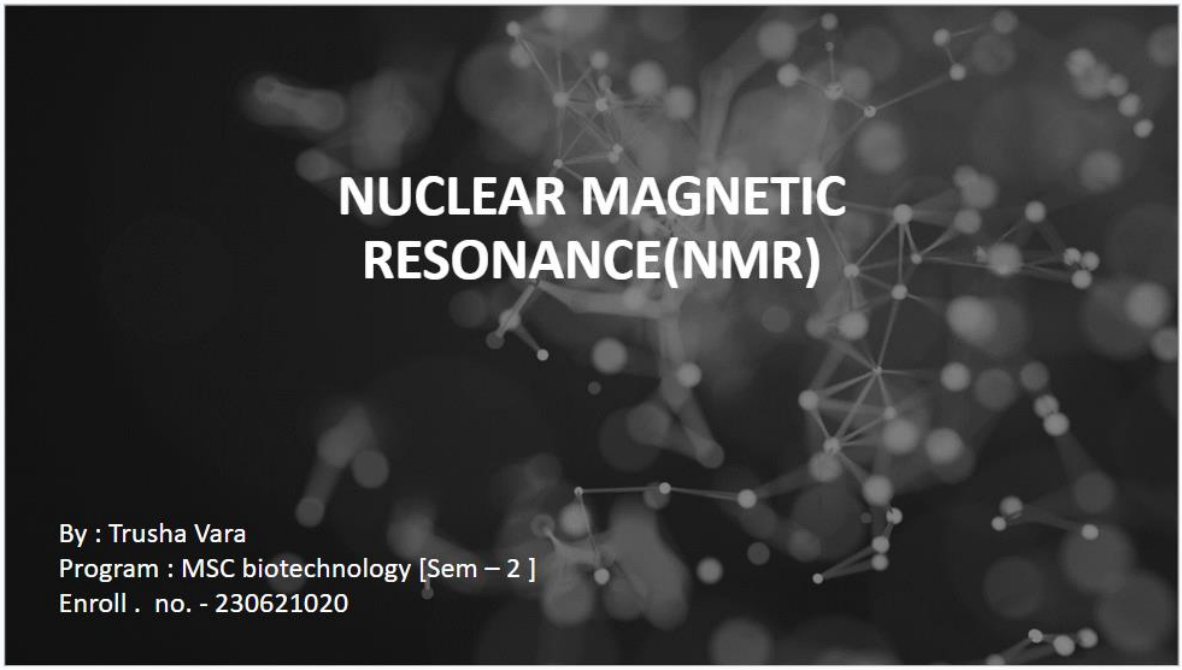
Assignment Task-2

Presentation of Above Titles (Present)



INTRODUCTION

- Nuclear magnetic resonance spectroscopy, most commonly known as NMR spectroscopy or magnetic resonance spectroscopy, is a spectroscopic technique based on re-orientation of atomic nuclei with non-zero nuclear spins in an external magnetic field.
- This reorientation occurs with absorption of electromagnetic radiation in the radio frequency region from roughly 4 to 900 MHz, which depends on the isotopic nature of the nucleus and increased proportionally to the strength of the external magnetic field. Notably, the resonance frequency of each NMR-active nucleus depends on its chemical environment. As a result, NMR spectra provide information about individual functional groups present in the sample, as well as about connections between nearby nuclei in the same molecule.
- As the NMR spectra are unique or highly characteristic to individual compounds and functional groups, NMR spectroscopy is one of the most important methods to identify molecular structures, particularly of organic compounds.

PRINCIPLE

- Many nuclei have spin, and all nuclei are electrically charged, according to the NMR principle. An energy transfer from the base energy to a higher energy level is achievable when an external magnetic field is supplied.
- All nuclei are electrically charged and many have spin.
- Transfer of energy is possible from base energy to higher energy levels when an external magnetic field is applied.
- The transfer of energy occurs at a wavelength that coincides with the radio frequency.
- Also, energy is emitted at the same frequency when the spin comes back to its base level.
- Therefore, by measuring the signal which matches this transfer the processing of the NMR spectrum for the concerned nucleus is yield.

Chemical Shift in NMR Spectroscopy

- A spinning charge generates a magnetic field that results in a magnetic moment proportional to the spin. In the presence of an external magnetic field, two spin states exist; one spin up and one spin down, where one aligns with the magnetic field and the other opposes it.
- Chemical shift is characterized as the difference between the resonant frequency of the spinning protons and the signal of the reference molecule. Nuclear magnetic resonance chemical change is one of the most important properties usable for molecular structure determination.
- There are also different nuclei that can be detected by NMR spectroscopy, 1H (proton), 13C (carbon 13), 15N (nitrogen 15), 19F (fluorine 19), among many more. 1H and 13C are the most widely used. The definition of 1H as it is very descriptive of the spectroscopy of the NMR. Both the nuts have a good charge and are constantly revolving like a cloud. Through mechanics, we learn that a charge in motion produces a magnetic field. In NMR, when we reach the radio frequency (Rf) radiation nucleus, it causes the nucleus and its magnetic field to turn (or it causes the nuclear magnet to pulse, thus the term NMR).

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Department of Biotechnology

M.Sc. Biotechnology
Semester-2
Academic Year 2023-24

Quality Assurance and Quality Control-
Assignment-1 (Group Discussion)

Submission Date: 1ST February, 2024

Resource: Classroom, Class note, general knowledge

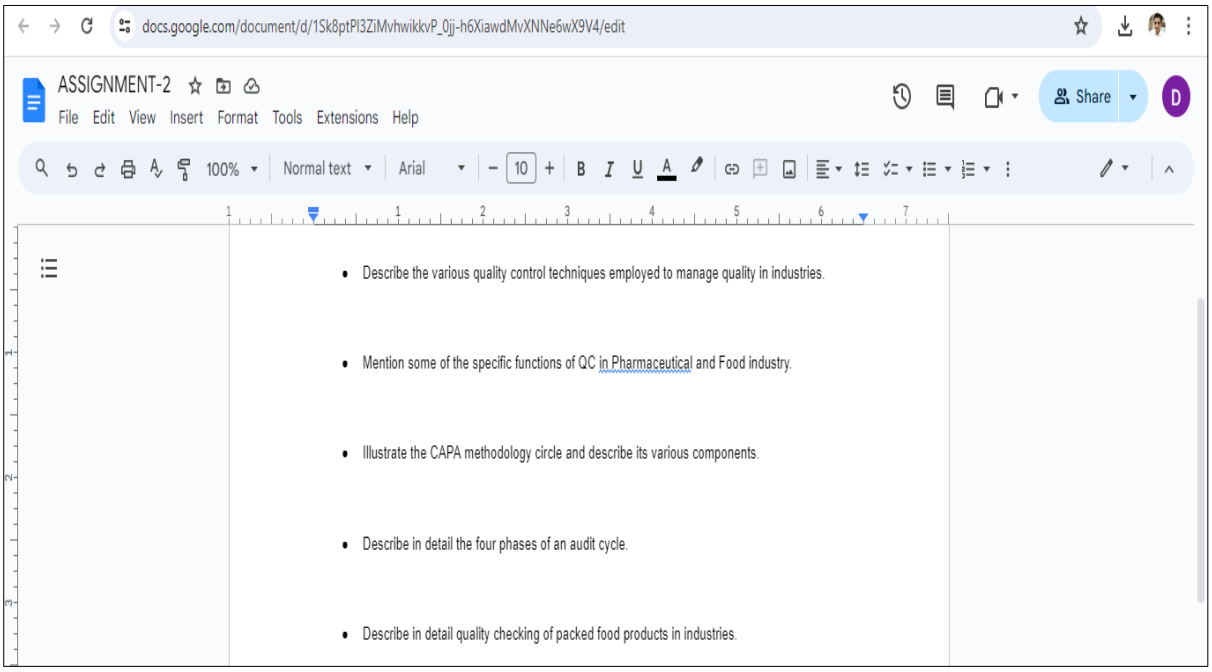
Assignment 1 Questions

Que. No.	Assignment Topics
1.	Whether strict adherence to regulatory guidelines is absolutely necessary!
2.	Name some of the regulatory guidelines important for industry!
3.	How feasible and practical is it for small industries to follow them!
4.	What practical implication does it possess for customer satisfaction!
5.	List some of the drawbacks that might generate if regulatory guidelines are not followed strictly.

Quality Assurance and Quality Control-
Assignment-2 (Question/Answers)

Submission Date: 23rd March, 2024

Resource: Class notes, reference materials e-resource, library



Assignment 2 Questions

Que. No.	Assignment Topics
1.	Describe the various quality control techniques employed to manage quality industries.
2.	Mention some of the specific functions of QC in Pharmaceutical and Food industry.
3.	Illustrate the CAPA methodology circle and describe its various components.
4.	Describe in detail the four phases of an audit cycle.
5.	Describe in detail quality checking of packed food products in industries.

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Department of Biotechnology

B.Sc. Biotechnology
Semester-6

Academic Year 2022-23

Recombinant DNA Technology - Assignment 1

Submission Date: 15 February, 2023

Resource: Library, E-Resources, Class note

Assignment Task-1

Que. No.	Assignment Topics
1.	Prepare a PowerPoint presentation on the given topics and present it.
2.	List of Topics • Introduction of phage into the Bacteria • Transformation • Ideal vector • PCR • RT -PCR

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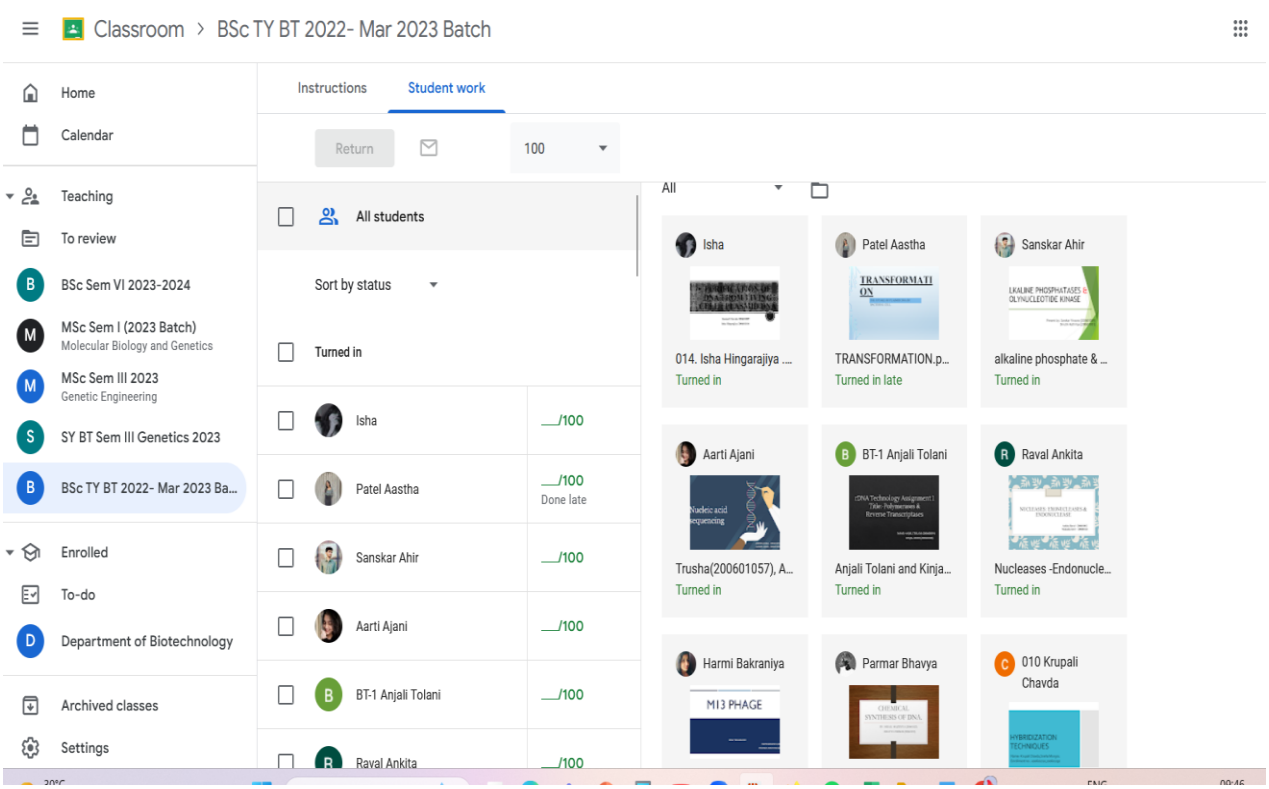

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Department of Biotechnology

B.Sc. Biotechnology
Semester-6

Academic Year 2022-23

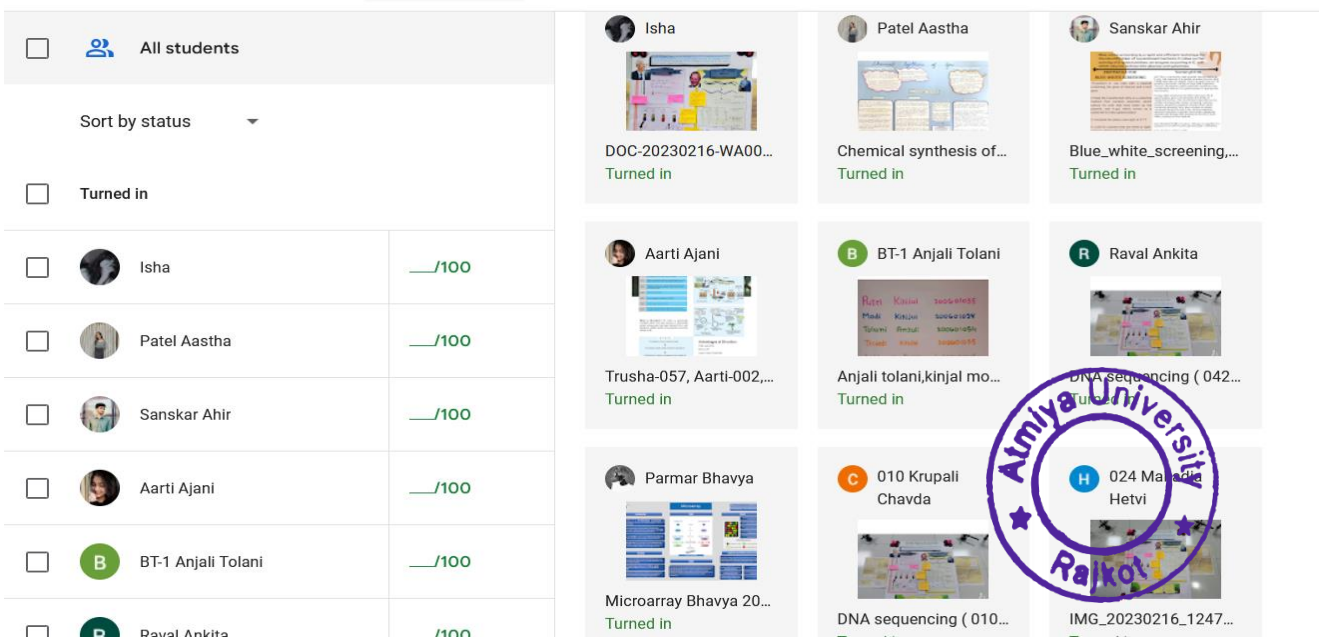
Recombinant DNA Technology - Assignment 2

Submission Date: 28 February, 2023

Resource: Library, E-Resources, Class note

Assignment Task-2

Que. No.	Assignment Topics
1.	Prepare a poster on any topic from the Course: Recombinant DNA Technology



Department of Biotechnology

B.Sc. Biotechnology
Semester-2

Academic Year 2022-23

Biology - Assignment-1

Submission Date: 17 February, 2023

Resource: Library, E-Resources, Class note

Assignment Task-1

Que. No.	Assignment Topics
1.	Write a note on Benthem and Hooker Classification with chart.
2.	Write a note on Apocynaceae family with floral formula and diagram.

Department of Biotechnology

B.Sc. Biotechnology
Semester-2

Academic Year 2022-23

Biology - Assignment-2

Submission Date: 13 April, 2023

Resource: Library, E-Resources, Class note

Assignment Task-2

Que. No.	Assignment Topics
1.	Define epithelium tissue and explain any two with labelled diagram.
2.	Write a note on nervous tissue system.
3.	Write a note on Pituitary glands with functions.
4.	Write a note on Skeleton muscles.
5.	Draw a labelled diagram Male & Female Reproductive System.
6.	Define Ovulation & explain in detail.
7.	Make a flow chart of spermatogenesis.
8.	Define Monopause write 4 characteristics of menopause.
9.	Draw a labelled diagram of oogenesis in the ovary.
10.	What is fertilization & explain the events of fertilization.

Department of Biotechnology

B.Sc. Biotechnology
Semester-3

Academic Year 2023-24

Environmental Biotechnology - Assignment-1

Submission Date: 05 August, 2023

Resource: Library, E-Resources, Class note

Assignment Task-1

Que. No.	Assignment Topics
1.	Explain the effects of Biomagnifications in brief.
2.	Define- Bioleaching, Biostimulation, Mineralization and Bioventing.
3.	Explain the Parameters of measures the quality of wastewater in brief.
4.	Explain any 4 physical properties of waste water.
5.	Define- Phytoremediation and explain the six mechanism of phytoremediation in brief.
6.	Explain the types of Aliphatic hydrocarbon regrinding bio-remediation, explain the bioremediation of any one type (Draw the flow chart.
7.	Define waste water and explain 3 sources of wastewater.

Assignment Task-2
Prepare Class note

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Department of Biotechnology

M.Sc. Biotechnology
Semester-3

Academic Year 2023-24

Agricultural Biotechnology - Assignment -1

Submission Date: 05 August, 2023

Resource: Library, E-Resources, Class note

Assignment Task-1

Que. No.	Assignment Topics
1.	Carrier based inoculants for Bio fertilizer and Bio pesticides.
2.	Mode of Action of Bio fertilizers in the soil.
3.	Method of application of Bio fertilizers and its suitable crops.
4.	Mode of action of Bio pesticides in soil.
5.	Source of Nitrogen, Role of Nitrogen in Plant.
6.	Types of Nitrogen Fixation and Nitrogen fixation/Nitrogen cycle.
7.	Factor affecting Nitrogen fixation.

Department of Biotechnology

M.Sc. Biotechnology
Semester-3

Academic Year 2023-24

Agriculture Biotechnology - Assignment-2

Submission Date: 20 September, 2023

Resource: Library, E-Resources, Class note

Assignment Task-2

Que. No.	Assignment Topics
1.	Direct method of gene transfer.
2.	Chemical gene transfer method.
3.	Structure of Ti Plasmid.
4.	Principle of Agro bacterium Mediated gene transfer.
5.	Application of Agrobacterium mediated gene transfer.

Department of Biotechnology

M.Sc. Chemistry
Semester-1

Academic Year 2023-24

Chemistry of Biomolecules - Assignment-1

Submission Date: 21 October, 2023

Resource: Library, E-Resources, Class note

Assignment Task-1

Que. No.	Assignment Topics
1.	Write a note on tertiary structure and quaternary structure of protein with diagram.
2.	Explain classification of Protein in detail.
3.	Describe disaccharide with examples.
4.	Define polysaccharide and explain homo polysaccharide.

Assignment Task-2

Prepare handbook for Module – 3,4 and 5

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Department of Biotechnology

M.Sc. Biotechnology
Semester-3

Academic Year 2021-23

Bioprocess Technology - Assignment-1

Submission Date: 21 November, 2023

Resource: Library, E-Resources, Class note

Assignment Task-1

S.No.	Enroll	Name	Topics
1	220621001	Agola Drashti Mukeshbhai	CSTR
2	220621002	Badi Mohammadsakil Yunus Alibhai	
3	220621003	Bamania Muskan Rakesh	
4	220621004	Barasara Hetviben Harjivanbhai	
5	220621005	Boricha Yash Kamleshbhai	
6	220621006	Changela Anandi Ashwinbhai	Waldhof
7	220621008	Davda Sonal Rajeshbhai	
8	220621009	Dharajiya Shraddha Santoshbhai	

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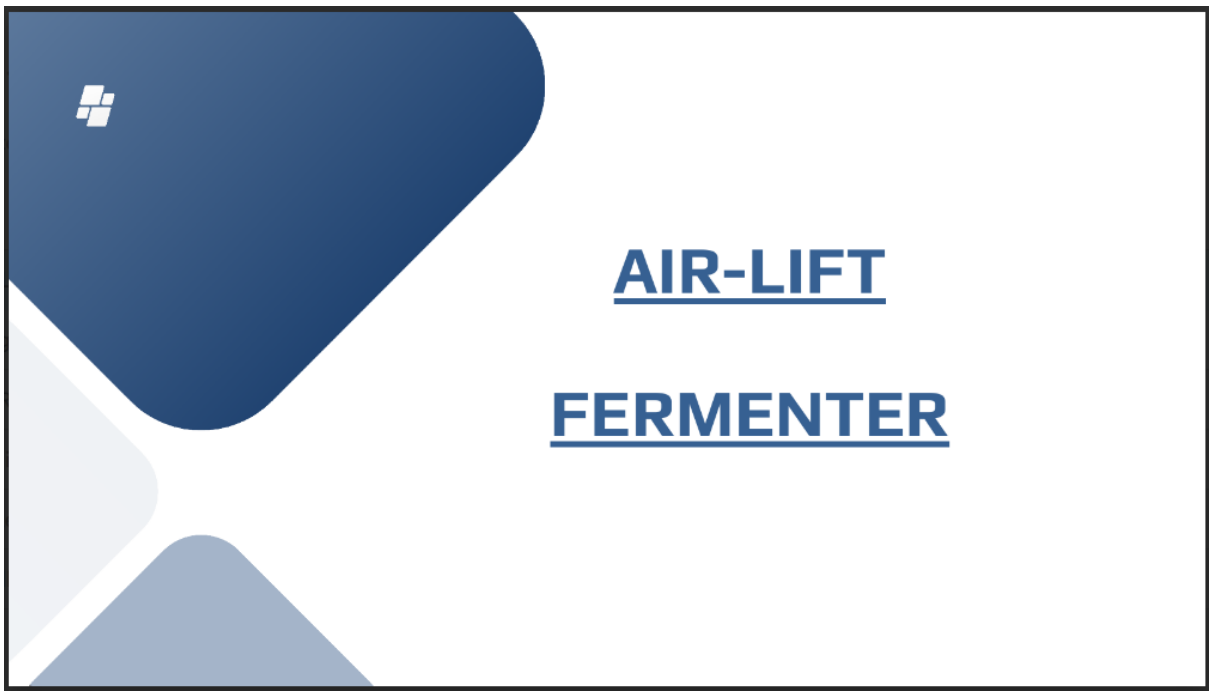
9	220621010	Ekta Ashokbhai Raiyani	
10	220621012	Gohil Brijrajsinh Manoharsinh	
11	220621013	Hihor Priyeshbhai Vikrambhai	Bubble Column
12	220621014	Jadeja Meetrajsinh Narendrasinh	
13	220621015	Joshi Panchhi Sanjaybhai	
14	220621016	Kagathara Urvi Dineshbhai	
15	220621018	Kaklotar Jay Shantibhai	
16	220621019	Kotadiya Prince Vijaybhai	Airlift Fermenter
17	220621020	Manjariya Minalben Golanbhai	
18	220621021	Nanavati Khushi Ritesh	
19	220621022	Parmar Maya Arjanbhai	
20	220621023	Pedhadiya Harviben Jentibhai	
21	220621024	Radadiya Sagar Kishorbhai	Fluidized Bed
22	220621025	Sakhiya Abhishek Dasharathbhai	
23	220621026	Shingadia Meet Dipakkumar	
24	220621027	Siddhpura Janki Satishbhai	
25	220621028	Singh Sarika Rampratap	Packed Bed
26	220621029	Solanki Ilakshi Kishan	
27	220621030	Vaghela Tejaskumar Kiritbhai	
28	220621032	Jesadiya Kashyapkumar Hashmukhbhai	

Assignment Task-2

Presentation of Above Titles (Present)



Introduction:

- The basic function of fermenter is to provide a controlled environment for the growth of micro-organisms or animal cells, to obtain a desired product.
- AIR-LIFT FERMENTER is an alternative to mechanically agitated systems that reduce shear stress by eliminating the mechanical agitator.
- Airlift bioreactors are quite similar to the stirred tank reactors, except for the impeller. This is a gas liquid bioreactor which is based on the draught tube principle. In this reactor compressed air is used for aeration and agitation. Usually the hairy roots require 0.05–0.4 vol of air/vol of liquid/min oxygen supply for optimum growth.
- In this reactor the aerator is a glass grid which helps to pass the humidified air, which is useful for mixing and oxygenation. Airlift reactors are in use for culturing different hairy roots, but they have their own drawbacks as well. A major drawback of this reactor is the formation of a dead zone due to insufficient mixing and nonuniform nutrient supply caused by high biomass density. These limitations badly affect the growth of hairy roots and secondary metabolite production.

Prince Kotadiya

Design of fermenter:

- In a typical airlift bioreactor , entire reactor is divided into 2 halves by a Draft tube.
- INNER GASSED REGION (Riser): gases passed through it.
- OUTER UN GASSED REGION (Downcomer)
- Mean density gradient between riser and downcomer regions causes continuous circulation.

Parts of fermenter:

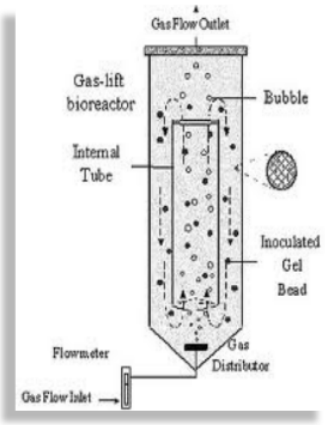
RISER: Connected gas injection- upward air flow.

DOWNCOMER: degassed media + cells .

BASE: Connected to Perforated nozzle Sparger to pump pressurized air.

HEAD SPACE: Gas release region, flocculation, foam accumulation etc.

GAS SEPARATOR: Facilitates gas/liquid recirculation Maximizes gas residence time Reduces gas friction in downcomer.



https://images.app.goo.gl/9xAENLqyDEVYuvd36

Minal Manjariya

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Department of Biotechnology
M.Sc. - BT
Semester-II
Academic Year 2023-24
21MBTCC204- Bioinformatics
Resource: Library, E-Resources, Class note
Assignment -1

Que. No.	Assignment Topic
1.	1. Retrieve the DMD gene of humans and answer the following questions a. What is the common name of the gene b. What is the accession number of the sequence c. Last modification date in the sequence d. Write down the PubMed ID of the first reference 2. Retrieve the Dystrophin protein of humans from the suitable databaseand answer the following questions a. Which database you used for the sequence retrieval b. Write down the protein ID c. Write down the length of the protein d. Briefly write down the function of protein 3. Globally align the human and mouse P53 protein sequence and answerthe following question a. Write down the protein ID of both sequences b. Which software you used for the analysis c. What is the percentage of identity? 4. Find the closest homolog of the human Clarin - protein and answer the following questions a. Which organism has the closest homolog protein b. What is the percentage of identity? c. Explain your result in the context of E-value 5. Design the PCR primer to amplify the sequence having accession number HQ190916 and answer the following questions a. Write down the bases of both the designed primer b. What is the melting temperature of both the primers c. What is the product size 6. Do the phylogenetic analysis of the human P53 protein sequence with its 10 closest homologs using the maximum parsimony method and drawyour tree.

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Assignment -2

Que. No.	Assignment Topics
1.	1. perform Global alignment of the below-given sequence by using the score as match: 1, mismatch: 0, indel = -1 Sequence 1: ATGACGATAG Sequence 2: ATGCG 2. generate the phylogenetic tree of the given sequence by using UPGMA solve the question on paper,

	A	B	C	D
A	0			
B	2.2	0		
C	4.3	4.5	0	
D	4.9	5.1	2.6	0

NAME : JANKI SIDDHPURA
ENROLL No. : 22062027

ASSIGNMENT-1

1) a : Common Name - dystrophin
b : NC - 000023
c : 20 March 2023
d : pubmed - 15772651.

2) a : Uniport
b : p11532.
c : 3685 a.a.
d : anchors the extracellular matrix to the cytoskeleton via f-actin ligand dystroglycan component of dystrophin associated glycoprotein complex which accumulates at m.t & at a vesicles of synapsis in peripheral & central nervous system & has structural function in stability in sarcolemme.

3) a : protein ID - Human : p04637
Mouse : p02340
b : EMBOSS Needle.
c : Identity - 304/396 = 76.8%

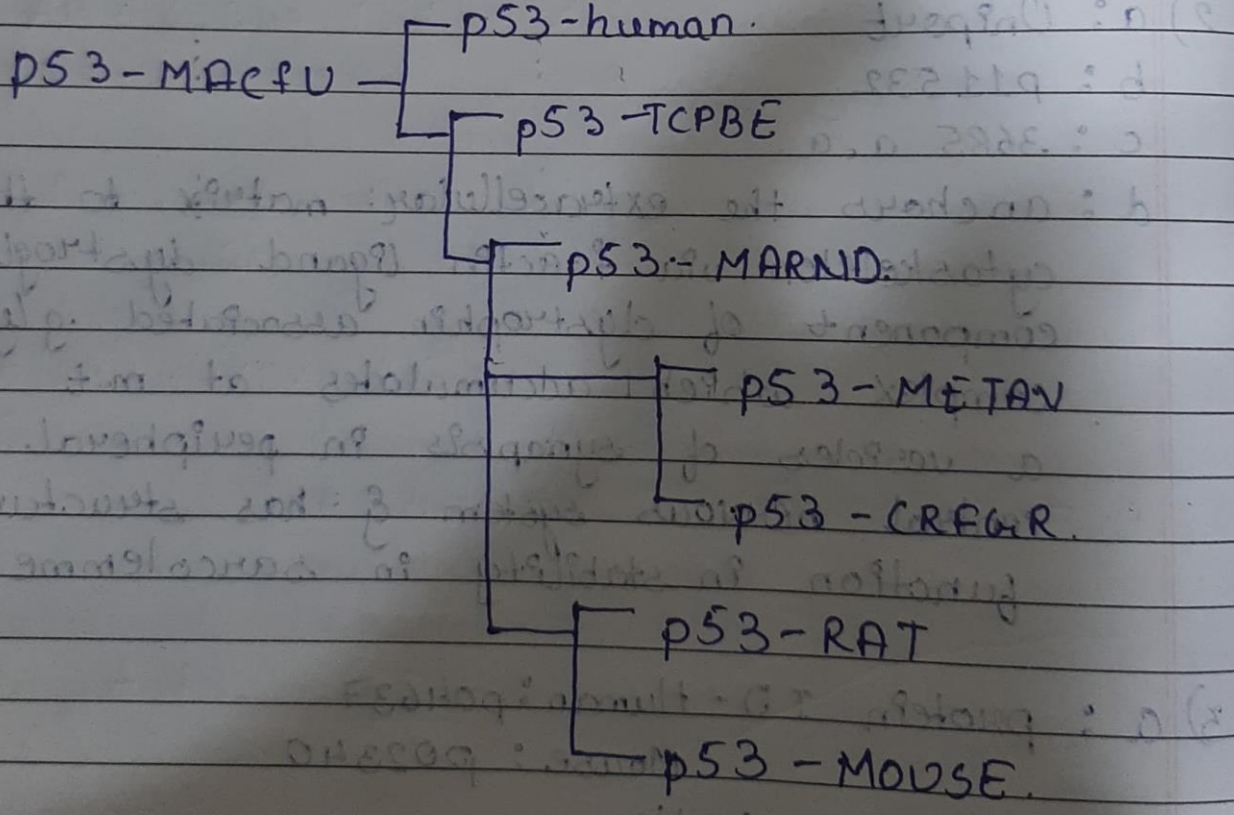
4) a : closest organism - chimpanzee
b : Identity - 98.70%
c : E-value = 2.2 e-167 ∴(E-value < eE-I)

SUKALA
Page
Date

5) Design PCR for HZ120916

a: Forward primer - TCTCTGGTCTGCAATC
Reverse primer - CAATCTCAGGAGGTTGGCCC
b: Forward primer - 59.68°C
Reverse primer - 60.39°C.
c: Product size - 725 bp.

6) Phylogenetic Analysis



NAME : JANKI SIDDHPURA
ENROLL No. : 22062102 7

ASSIGNMENT - 2

1) Seq. 1 = ATGACGATAG. Seq. 2 = ATGCG.

M - 1 , MM - 0 , Indel - (-1).

		A	T	G	A	C	G	A	T	A	G
	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10
A	-1	1	0	-1	-2	-3	-4	-5	-6	-7	-8
T	-2	0	2	1	0	-1	-2	-3	-4	-5	-6
G	-3	-1	1	3	2	1	0	-1	-2	-3	-4
C	-4	-2	0	2	3	3	2	0	-1	-2	-3
G	-5	-3	-1	1	2	3	4	3	2	1	4

Seq. 1 = A T G A C G A T A G.
Seq. 2 = A T G _ C G _ _ _ _

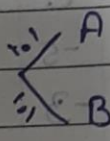
Score: m(value) + mm(value) + Indel (gap)
= 0(0) + 5(1) + (1(-1))
= 0 + 5 - 1
= 4

Identity = $\frac{5}{10} \times 100 = 50\%$

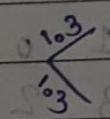
2) UPGMA.

	A	B	C	D
A	0			
B	2.2	0		
C	4.3	4.5	0	
D	4.4	5.1	2.6	0

$AB = \frac{2.2}{2} = 1.1$



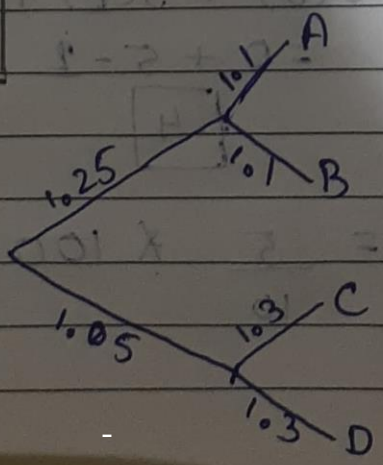
$CD = \frac{2.6}{2} = 1.3$



$$d(AB)\,d(CD) = \frac{AC + AD + BC + BD}{4}$$

$$= \frac{4.3 + 4.4 + 4.5 + 5.1}{4} = \frac{4.7}{2} = 2.35$$

	AB	CD
AB	0	
CD	4.7	0



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Department of Biotechnology

M.Sc. Biotechnology
Semester-1

Academic Year 2023-24

Cell Biology - Assignment

Submission Date: 2nd October, 2023

Resource: Library, E-Resources, Class note

Assignment – **Peer Review Presentation**

Sr. No.	Student's Name	Assignment Topics
1.	Raval Ankitaben Pankajbhai	Structure and function of microbodies : golgi body
2.	Krupali Chavda	Structure and function of microbodies : lysosomes
3.	Dholariya Heni Pareshbhai	Structure and function of microbodies : endoplasmic reticulum
4.	Vaghela Hinaben Laljibhai	Microtubules: Structural organization
5.	Makasna Janviben Dasharathbhai	Microtubules: Dynamics
6.	Naiya Jayveer Rajeshbhai	Role of tubulin
7.	Kirtana Kanji Bamaniya	Role of cilia
8.	Jarsaniya Krushikumar Sanjaybhai	Role of flagella

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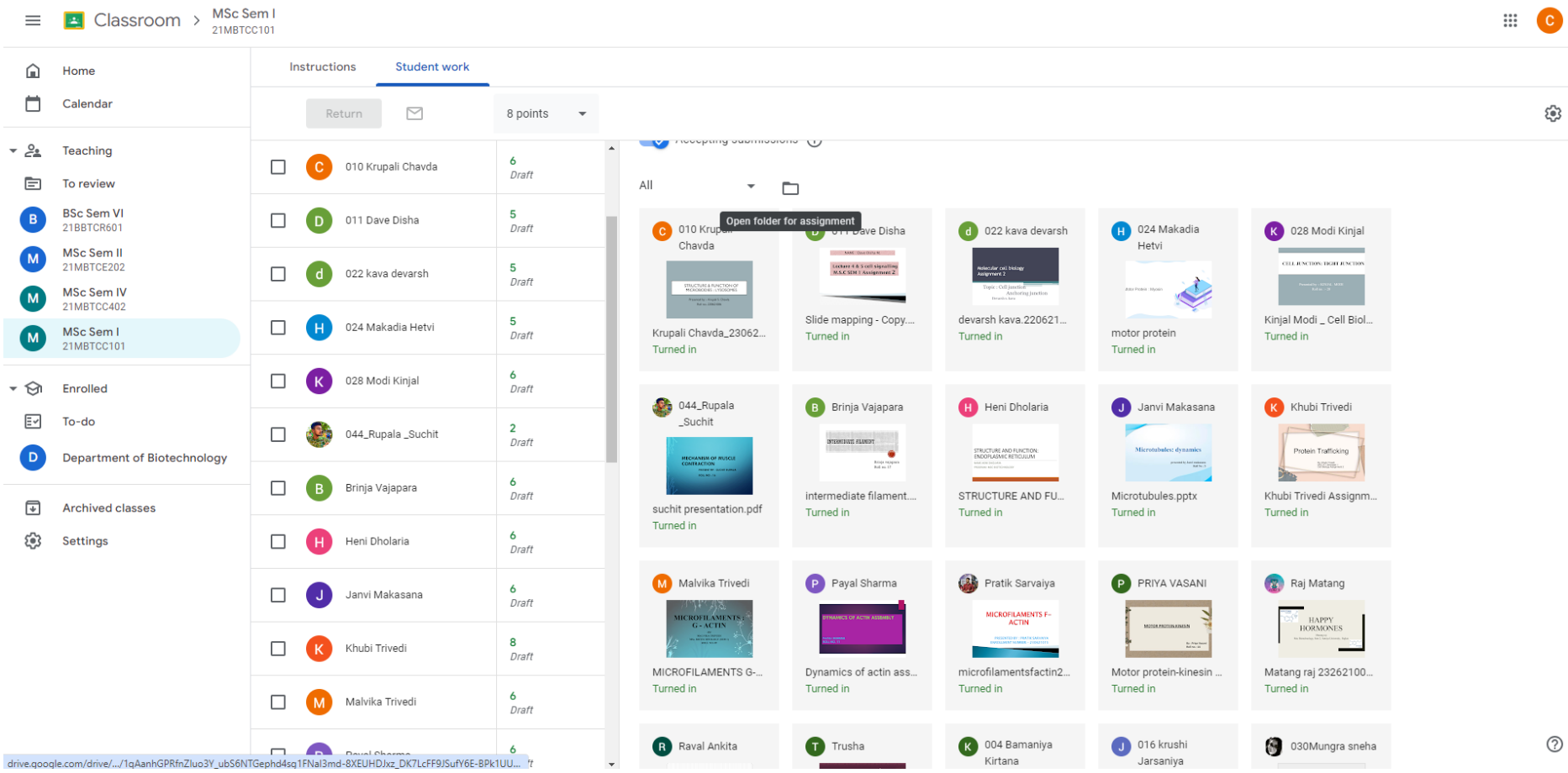
9.	Trivedi Malvika Pratik	Microfilaments: G actin
10.	Sarvaiya Pratikkumar Hareshbhai	Microfilaments: F actin
11.	Payal Sharma	Dynamics of actin assembly
12.	Vara Trusha Maheshbhai	Functional role of actin filaments
13.	Rozivadiya Vacha Hirenbhai	Motor Proteins: dynein
14.	Vasani Priya Jayeshbhai	Motor Proteins: kinesin
15.	Makadia Hetvi Denishbhai	Motor Proteins: myosins
16.	Rupala Suchitkumar Ashvinbhai	Mechanism of muscle contraction
17.	Vajapara Brinjaben Lakhabhai	Intermediate filaments
18.	Kava Devarsh Sudhirbhai	Cell junctions: anchoring junction
19.	Dave Disha Maheshbhai	Cell junctions: gap junction
20.	Modi Kinjal Chetanbhai	Cell junctions: tight junction
21.	Kishan Zinzuvadia	Summary of whole Module 3
22.	Khubi Trivedi	Protein Trafficking

Class Activity – **4 Sets of Multiple Choice Questions**

Sr. No.	Lecture Number	Assignment Topics
1.	1 & 2	Molecular basis of Signal Transduction
2.	3	Principles of Cell Signalling
3.	4	Signalling through GPCR – Part 1
4.	5	Signalling through GPCR – Part 2

Assignment – Peer Review Presentation of Cell Biology based on Topics given in the Syllabus



Class Activity – MCQ based on Class Lectures of Cell Biology

Lecture 1 & 2 Quiz

Lecture 1&2 Quiz

The set of questionnaire are based on the concepts gained during lectures 1 & 2 of Cell Biology course.

* Indicates required question

1. Email *

2. Which of the following is NOT a form of cellular signalling? 1 point

Mark only one oval.

- A) Hormonal
- B) Neural
- C) Enzymatic
- D) Paracrine

3. Which of the following is true about cellular communication? * 1 point

Mark only one oval.

- A) It is only necessary for multicellular organisms.
- B) It involves the exchange of information between cells.
- C) It occurs solely through physical contact between cells.
- D) It is not essential for maintaining homeostasis.

4. What is the significance of cellular communication in multicellular organisms? * 1 point

Mark only one oval.

- A) It allows cells to coordinate their functions and respond to changes in the environment.
- B) It ensures the survival of individual cells.
- C) It only occurs between cells of the same type.
- D) It does not contribute to tissue development or organ formation.

5. Which of the following is an example of direct cell-to-cell communication? * 1 point

Mark only one oval.

- A) Hormonal signaling
- B) Paracrine signaling
- C) Synaptic signaling
- D) Endocrine signaling

6. Why is cellular communication essential for maintaining homeostasis? * 1 point

Mark only one oval.

- A) It allows cells to adapt to changes in their environment and respond appropriately.
- B) It is necessary for cell division and proliferation.
- C) It ensures the survival of individual cells.
- D) It does not play a role in regulating physiological processes.

Lecture 1 & 2 Quiz

7. Which of the following is a characteristic of signal molecules? * 1 point

Mark only one oval.

- A) They are only produced by endocrine glands.
- B) They act as messengers to transmit signals between cells.
- C) They are always lipid-soluble.
- D) They can only bind to intracellular receptors.

8. Receptors are proteins that: * 1 point

Mark only one oval.

- A) Are involved in the synthesis of signal molecules.
- B) Transmit signals from the cytoplasm to the nucleus.
- C) Bind to specific signal molecules and initiate cellular responses.
- D) Can only be found on the surface of cells.

9. Signal transduction refers to: * 1 point

Mark only one oval.

- A) The release of signal molecules from cells.
- B) The binding of receptors to signal molecules.
- C) The process of converting an extracellular signal into an intracellular response.
- D) The activation of ion channels in response to neurotransmitters.

10. Which of the following is an example of a G protein-coupled receptor (GPCR)? * 1 point

Mark only one oval.

- A) Insulin receptor
- B) Epidermal growth factor receptor (EGFR)
- C) Dopamine receptor
- D) Nuclear receptor

11. The activation of receptor tyrosine kinases (RTKs) leads to: * 1 point

Mark only one oval.

- A) Activation of G proteins.
- B) Phosphorylation of tyrosine residues on the receptor.
- C) Opening of ion channels.
- D) Binding to hormone response elements (HREs) on DNA.

Lecture 3 Quiz

Lecture 3 Quiz

The set of questionnaire are based on the concepts gained during lecture 3 of Cell Biology course.

* Indicates required question

1. Email *

2. Which of the following types of signaling involves secreted signaling molecules acting on neighboring cells? * 1 point

Mark only one oval.

- A) Autocrine signaling
- B) Endocrine signaling
- C) Paracrine signaling
- D) Juxtacrine signaling

3. The specificity of signal molecules binding to their receptors is primarily determined by: * 1 point

Mark only one oval.

- A) The size of the signaling molecule.
- B) The concentration of the signaling molecule.
- C) The shape and complementary fit between the signaling molecule and receptor.
- D) The location of the signaling molecule in the extracellular environment.

4. Cellular responses to extracellular signals are determined by: * 1 point

Mark only one oval.

- A) The concentration of intracellular signaling molecules.
- B) The number of extracellular signal molecules.
- C) The specific combination of extracellular signals received.
- D) The size of the cell.

5. Which class of cell-surface receptors acts by activating intracellular second messenger systems? * 1 point

Mark only one oval.

- A) Receptor tyrosine kinases (RTKs)
- B) Ligand-gated ion channels
- C) G protein-coupled receptors (GPCRs)
- D) Nuclear receptors

6. Which statement accurately describes the role of intracellular signaling molecules? * 1 point

Mark only one oval.

- A) They bind directly to extracellular signal molecules.
- B) They transmit signals directly to the cell surface.
- C) They amplify and relay signals from cell-surface receptors to intracellular targets.
- D) They prevent the binding of extracellular signals to their receptors.

Lecture 3 Quiz

7. Specificity and precision of intracellular signaling are achieved through: * 1 point

Mark only one oval.

- A) High concentrations of signaling molecules.
- B) Redundancy in signaling pathways.
- C) Amplification of signaling molecules in the cytoplasm.
- D) Specific interactions between signaling molecules and their targets.

8. After ligand binding, activated cell-surface receptors often undergo: * 1 point

Mark only one oval.

- A) Endocytosis and degradation.
- B) Dimerization or oligomerization.
- C) Depletion of intracellular signaling molecules.
- D) Inactivation of G proteins.

9. In intracellular signaling proteins, modular domains are responsible for: * 1 point

Mark only one oval.

- A) Binding to extracellular signal molecules.
- B) Amplification of intracellular signals.
- C) Interactions with other signaling proteins and components.
- D) Transporting signals to the cell nucleus.

10. In some signaling pathways, a weak signal may result in a: * 1 point

Mark only one oval.

- A) Weak and gradual cellular response.
- B) Strong and rapid cellular response.
- C) Gradual increase in signaling molecules.
- D) Gradual decrease in cellular activity.

11. In fast-acting signaling pathways, rapid cellular responses are achieved by: * 1 point

Mark only one oval.

- A) Continuous synthesis of signaling molecules.
- B) Prolonged stability of signaling molecules.
- C) Rapid degradation or inactivation of signaling molecules.
- D) Reversible binding of signaling molecules to their receptors.

12. The phenomenon in which cells exhibit a sudden response despite a gradual increase in the signal is known as: * 1 point

Mark only one oval.

- A) Positive feedback.
- B) Negative feedback.
- C) Amplification.
- D) All-or-none response.

Lecture 3 Quiz

13. Positive feedback in signaling systems can lead to: * 1 point

Mark only one oval.

- A) Gradual decreases in cellular activity.
- B) All-or-none responses.
- C) Specific interactions between signaling molecules and their targets.
- D) Slower cellular responses.

14. Negative feedback in signaling pathways helps to: * 1 point

Mark only one oval.

- A) Amplify cellular responses.
- B) Generate an all-or-none response.
- C) Limit and regulate cellular responses.
- D) Promote positive feedback loops.

15. Cellular sensitivity to signals can be adjusted by: * 1 point

Mark only one oval.

- A) Reducing the number of intracellular signaling molecules.
- B) Increasing the number of extracellular signal molecules.
- C) Modifying the activity or abundance of cell-surface receptors.
- D) Increasing the size of the cell.

Lecture 4 Quiz

Lecture 4 Quiz

The set of questionnaire are based on the concepts gained during lecture 4 of Cell Biology course.

* Indicates required question

1. Email *

2. G-protein-coupled receptors (GPCRs) are a large family of cell surface receptors that are involved in transmitting signals from extracellular molecules to the inside of the cell. They are characterized by: * 1 point

   Mark only one oval.

   - A) Their ability to directly phosphorylate intracellular proteins.
   - B) Their intrinsic kinase activity.
   - C) Their activation through ligand binding and interaction with G proteins.
   - D) Their exclusive involvement in the regulation of cell adhesion.

3. Trimeric G proteins consist of three subunits: alpha, beta, and gamma. The alpha subunit of G proteins is responsible for: * 1 point

   Mark only one oval.

   - A) Binding to extracellular ligands.
   - B) Phosphorylation of downstream signaling proteins.
   - C) Binding to GPCRs and activating intracellular signaling pathways.
   - D) Acting as a second messenger inside the cell.

4. When an agonist binds to a GPCR, the receptor undergoes a conformational change, leading to the exchange of GDP for GTP on the alpha subunit of the G protein. This event results in the: * 1 point

   Mark only one oval.

   - A) Disassembly of the G protein complex.
   - B) Activation of phospholipase C.
   - C) Inactivation of adenylyl cyclase.
   - D) Release of the beta and gamma subunits from the alpha subunit.

5. Which G protein subunit is directly responsible for activating adenylyl cyclase and increasing cyclic AMP levels? * 1 point

   Mark only one oval.

   - A) Alpha subunit
   - B) Beta subunit
   - C) Gamma subunit
   - D) All subunits contribute equally to this process.

6. When cyclic AMP (cAMP) binds to and activates protein kinase A (PKA), PKA: * 1 point

   Mark only one oval.

   - A) Catalyzes the synthesis of cAMP from ATP.
   - B) Phosphorylates and activates G protein-coupled receptors.
   - C) Phosphorylates and regulates various intracellular proteins.
   - D) Inactivates adenylyl cyclase to reduce cAMP levels.

7. Upon activation of certain G protein-coupled receptors, the alpha subunit can directly activate phospholipase C (PLC), leading to the hydrolysis of phosphatidylinositol 4,5-bisphosphate (PIP2) into two important second messengers. These second messengers are: * 1 point

   Mark only one oval.

   - A) Cyclic AMP (cAMP) and inositol trisphosphate (IP3).
   - B) Diacylglycerol (DAG) and inositol trisphosphate (IP3).
   - C) Diacylglycerol (DAG) and cAMP.
   - D) Adenosine diphosphate (ADP) and phosphatidylinositol 4-phosphate (PIP).

Lecture 5 Quiz

Lecture 5 Quiz

The set of questionnaire are based on the concepts gained during lecture 5 of Cell Biology course.

* Indicates required question

1. Email *

2. G-proteins are a family of intracellular signaling proteins that: 1 point

Mark only one oval.

- A) Bind directly to extracellular ligands.
- B) Phosphorylate cell surface receptors.
- C) Relay signals from GPCRs to intracellular effectors.
- D) Form part of the GPCR structure.

3. G-protein signaling involves the activation of G-proteins by: * 1 point

Mark only one oval.

- A) Endocytosis of ligand-receptor complexes.
- B) Phosphorylation of the receptor by GPCRs.
- C) Exchange of GDP for GTP on the alpha subunit.
- D) Direct interaction of GPCRs with intracellular effectors.

4. GPCRs are integral membrane proteins that span the cell membrane: * 1 point

Mark only one oval.

- A) Once.
- B) Twice.
- C) Three times.
- D) Four times.

5. GPCRs are a class of cell-surface receptors that belong to which major family of receptors? * 1 point

Mark only one oval.

- A) Receptor tyrosine kinases (RTKs)
- B) Ligand-gated ion channels
- C) Enzyme-linked receptors
- D) Seven-transmembrane receptors

6. The primary mechanism of GPCR signaling involves the activation of: * 1 point

Mark only one oval.

- A) Protein kinase A (PKA).
- B) Phospholipase C (PLC).
- C) Adenylyl cyclase.
- D) Second messengers.

7. Heterotrimeric G-proteins consist of which three subunits? * 1 point

Mark only one oval.

- A) Alpha, beta, and gamma.
- B) Alpha, gamma, and delta.
- C) Alpha, beta, and epsilon.
- D) Alpha, gamma, and omega.

Lecture 5 Quiz

8. Ras G proteins are monomeric GTPases that play a role in: * 1 point

Mark only one oval.

- A) Regulating the production of cyclic AMP (cAMP).
- B) Phosphorylating intracellular proteins.
- C) Signal transduction from receptor tyrosine kinases (RTKs).
- D) Signaling through phospholipids.

9. Which of the following statements is true about G-proteins? * 1 point

Mark only one oval.

- A) They bind directly to extracellular ligands.
- B) They are enzymes that phosphorylate cell surface receptors.
- C) They relay signals from GPCRs to intracellular effectors.
- D) They are an integral part of the GPCR structure.

10. The activation of G-proteins involves the exchange of which nucleotide on the alpha subunit? * 1 point

Mark only one oval.

- A) ADP for ATP
- B) ATP for ADP
- C) GDP for GTP
- D) GTP for GDP

11. GPCRs have how many transmembrane domains? * 1 point

Mark only one oval.

- A) One
- B) Two
- C) Seven
- D) Multiples of Seven

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Yogidham Gurukul, Kalawad Road, Rajkot - 360005, Gujarat (INDIA)

Department of Biotechnology

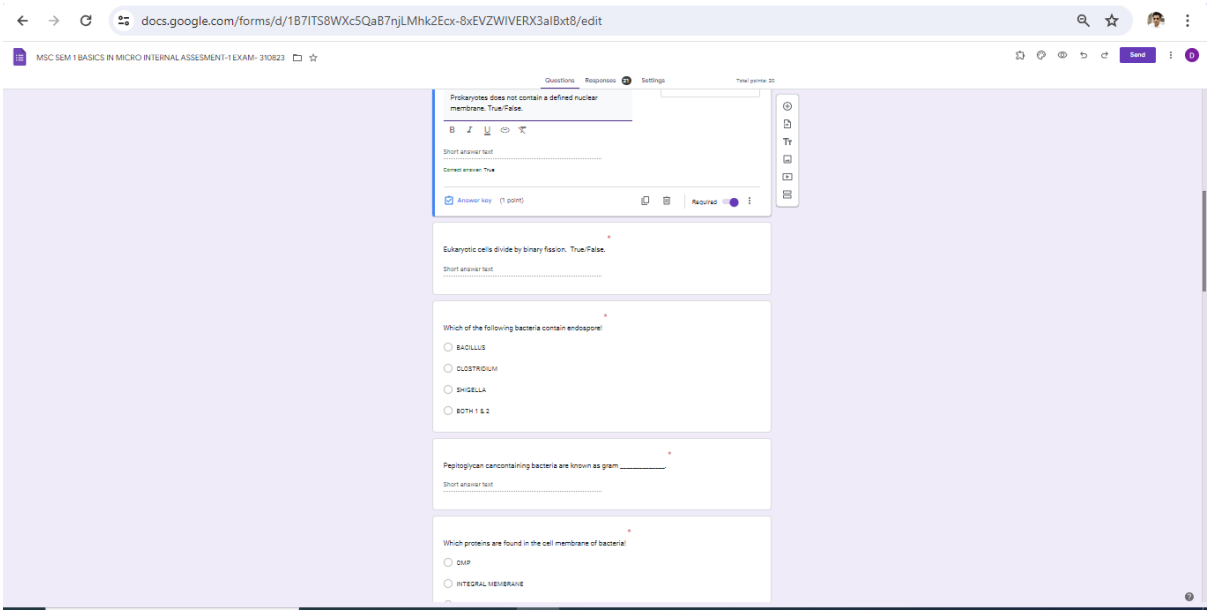
M.Sc. Biotechnology
Semester-1

Academic Year 2023-24

Basics of Microbiology - Assignment-1 (Question/Answers)

Submission Date: 31st August, 2023

Resource: Class notes, Reference materials, e-resource, Books



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Assignment 1 Questions

Que. No.	Assignment Topics
1.	Eukaryotic cells divide by binary fission. True/False.
2.	Which of the following bacteria contain endospore! A) Bacillus B) Clostridiu C) Shigella D) both 1 &2.
3.	Pepitoglycan cancontaining bacteria are known as gram _____.
4.	Which proteins are found in the cell membrane of bacteria! A) omp B) integral membrane C) glycosylated D) all.
5.	Mention one rare example of prokaryote containing sterol in cell membrane. A) actinomycetes B) fungi C) mycoplasma D) sulphur bacteria?

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Department of Biotechnology

M.Sc. Biotechnology
Semester-1

Academic Year 2023-24

Basics of Microbiology- Assignment-2 (Seminar Presentation)

Submission Date: 30th October, 2023

Resource: Class notes, Reference materials, e-resource, Books

Assignment 2 Questions

Que. No.	Assignment Topics
1.	Define heterotrophs and describe their nutritional requirements.
2.	What the difference is between pour plate and spread plate method of culture isolation!
3.	Who discovered Transduction!
4.	Which are the essential factors for the assembly of TMV virus inside the host cell!
5.	Mention five physical factors employed for sterilisation.

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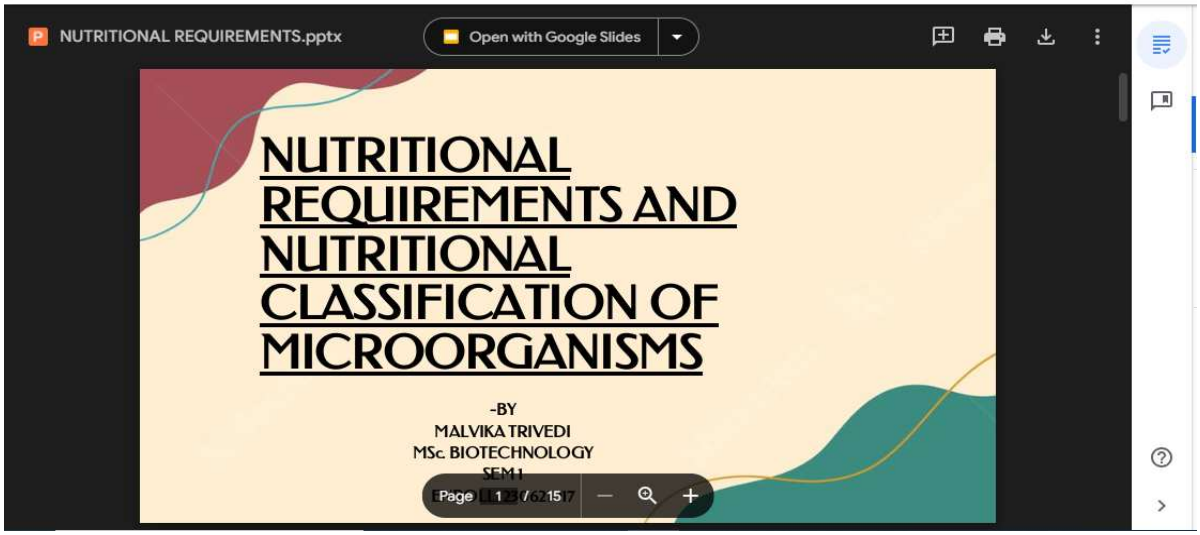
MSC SEM 1 BOM INTERNAL ASSIGNMENT-1 PPT

Malvika Trivedi Turned in



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MSC SEM 1 BOM INTERNAL ASSIGNMENT-1 PPT

Pratik Sarvaiya Turned in

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MSC SEM 1 BOM INTERNAL ASSIGNMENT-1 PPT

Raval Ankita Turned in

microbio ppt assignment ..pptx Open with Google Slides

TRANSDUCTION

RAVAL ANKITA
MSC BIOTECHNOLOGY SEM 1
ATMIYA UNIVERSITY

Page 1 / 6

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MSC SEM 1 BOM INTERNAL ASSIGNMENT-1 PPT

Raval Ankita Turned in

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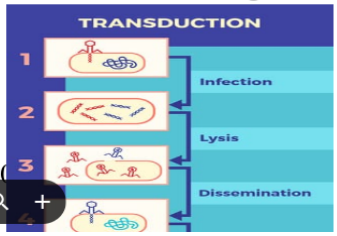
TRANSDUCTION:

- The process by which DNA transferred from one bacterial cell to another by bactriophage.
- Transduction was first discovered by **Joshua & Lederberg and Norton Zinder.**
- Two tyes of transduction**:**
  - **1. Generalised Transduction**
  - **2. Specialised Transduction**



It can transfer DNA regions of 10 to 100
Of kilobase.

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MSC SEM 1 BOM INTERNAL ASSIGNMENT-1 PPT

011 Dave Disha Turned in

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MSC SEM 1 BOM INTERNAL ASSIGNMENT-1 PPT

PRIYA VASANI Turned in

priya vasani 220621031 BOM.pdf Open with Google Docs

ATMIYA UNIVERSITY

Faculty of Engineering and Technology

Department of Electrical Engineering

UG Semester – II

Subject Code: -

Subject Name: - Fundamentals Of Electrical Engineering

Assignment No. : – 1

1. **State And Explain Kirchoff's Voltage And Current Laws.**
2. **Prove $R_{t2} = R\ t1\ [1 + \alpha 1\ (t2-t1)]$, Where Notations Have Usual Meanings.**
3. **With Necessary Diagram Derive The Formula For Star To Delta And Delta To Star Transformation.**
4. **Derive an Expression for Temperature Coefficient at Temperature t, $t, \alpha t = \alpha_0 / (1+ \alpha_0.t)$. Where Notations Have Usual Meanings.**
5. **Explain Series And Parallel Connection Of Resistor**
6. **Explain The Temperature Coefficient And Also Its Effect Of Different Material.**
7. **With Reference To Electrostatic And Capacitance: (I) State Coulomb's Laws (II) Define:- (A) Electric Field Intensity (B) Electric Potential (C) Potential Gradient (D) Permittivity (E) Capacitance**
8. **Derive An Expression For The Equivalent Capacitance Of Parallel Plate Capacitors When They Are Connected In (I) Series And (II) Parallel**
9. **Explain Charging And Discharging Of A Capacitor, C, Through A Resistor, R, With Neat Sketch And Derive The Equation $V_c = V\ (1- e^{-t/RC})$. Assume That The R-C Series Circuit Is Connected Across A D.C Supply Of Voltage V.**
10. **Explain Different Types Of Capacitors In Brief.**

Atmiya University Rajkot

ATMIYA UNIVERSITY

Faculty of Engineering and Technology

Department of Electrical Engineering

UG Semester – II

Subject Code: -

Subject Name: - Fundamentals Of Electrical Engineering

Assignment No. : – 2

1. **Give The Comparison Between Electric And Magnetic Circuit**
2. **State And Explain Faraday's Laws Of Electromagnetic Induction.**
3. **Explain Self Induced E.M.F. And Mutually Induced E.M.F**
4. **Define (1) MMF (2) Magnetic Flux Density (3) Retentivity (4) Reluctance.**
5. **What Is Coefficient Of Coupling? Derive Expression For The Same Between Two Magnetically Coupled Coils.**
6. **Distinguish Statically Induced And Dynamically Induced EMF. Derive Expression For Dynamically Induced EMF.**
7. **Explain Magnetic Hysteresis.**
8. **Give The Comparison Of Series Resonance And Parallel Resonance.**
9. **Write Down The Line Value And Phase Value Relationship Of Voltages And Currents In 3 Phase Star And Delta Connected Systems.**
10. **Define Following Terms In Connection With A.C Wave Forms: (I) Frequency (II) Phase & Phase Difference (III) Time Period (IV) Form Factor (V) R. M. S. Value (VI) Average Value.**
11. **Prove That In A Purely Capacitive Circuit Power Consumed Is Zero When A.C. Voltage Is Applied. Draw Relevant Phasor Diagram And Waveforms.**
12. **Prove That Current Through Pure Inductor Is Always Lagging By 90^{o} To Its Voltage And Power Consumed Is Zero.**
13. **Define Power Factor. What Is The Power Factor Of A Pure Inductor? Give The Difference Between Active And Reactive Power.**

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सुहृदं सर्वभूतानाम्

Department of Biotechnology

M. Sc. Biotechnology Semester-1

Academic Year 2021-22

Molecular Biology and Genetics - Assignment 1

Submission Date: 6 January, 2022

Resource: Library, E-Resources, Class note

Assignment Task-1

Que. No.	Assignment Topics
1.	Prepare a PowerPoint presentation on the given topics and present it.
2.	**List of Topics:** Replication (Prokaryotes and Eukaryotes) Chromosomes Lac operon Inhibitors of central dogma mRNA splicing RNA Polymerases

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Department of Biotechnology

M. Sc. Biotechnology Semester-1

Academic Year 2021-22

Molecular Biology and Genetics - Assignment 2

Submission Date: 30 January, 2022

Resource: Library, E-Resources, Class note

Assignment Task-2

Que. No.	Assignment Topics
1.	Prepare notes on any topic from the Course: Molecular Biology and Genetics

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Department of Biotechnology

M.Sc. Biotechnology
Semester-2

Academic Year 2022

Instrumentation and Techniques - Assignment-1

Submission Date: 12 April, 2022

Resource: Library, E-Resources, Class note

Assignment Task-1

ATMIYA UNIVERSITY

M.Sc. Biotechnology Semester – II

INSTRUMENTATION AND TECHNIQUES

Sr. No.	Enrolment No.	Student Name	Topics
1	210621001	Amipara Mansi Mineshbhai	Question Bank preparation from all Modules (1-5) with 1 mark; 4 marks, and 7 marks questions.
2	210621002	Amlani Lancy Rakeshbhai	
3	210621003	Avadh Jani	
4	210621004	Bagariya Chintan Dilipbhai	
5	210621005	Baxi Shraddha Bhavenbhai	
6	210621006	Bhalsod Sunny Rameshbhai	
7	210621007	Bhatt Khushi Parag	
8	210621008	Bopaliya Poojaben Virjibhai	
9	210621009	Charoliya Meet Mukeshbhai	
10	210621010	Chauhan Vrunda Rajeshbhai	
11	210621011	Desai Himanshiben Rajeshbhai	
12	210621012	Dhamdhere Avni Ruturaj	
13	210621013	Dharmi Limbasiya	
14	210621014	Dudani Nivaben Sanjaybhai	
15	210621015	Gondaliya Avani Prafulbhai	
16	210621016	Gorsera Nagesh Bhimabhai	
17	210621017	Hansalia Prinsaben Mansukhbhai	
18	210621018	Hothi Akhil Vijaybhai	
19	210621019	Jadeja Trishali Muktarajsinh	
20	210621020	Janvi Tejasbhai Pujara	
21	210621021	Jesadiya Yashvi Umeshbhai	
22	210621022	Jethwa Janki Pravinbhai	
23	210621023	Kansagra Mansi Mansukhlal	
24	210621024	Karkar Rutva Jaysukhbhai	
25	210621025	Khant Bishankumar Karshanbhai	
26	210621026	Nandani Miloni Bhupendrakumar	
27	210621027	Nandaniya Bhargav Maldebhai	
28	210621028	Pandhi Jilesh Jitendrabhai	
29	210621029	Pandya Vinit Vimalbhai	
30	210621030	Parmar Prasann Maheshbhai	
31	210621031	Patel Princy Jayrajbhai	
32	210621032	Patel Yeshakumari Chetanbhai	
33	210621033	Pratiti B Acharya	
34	210621034	Rachhadiya Jeni Bharatbhai	
35	210621035	Radadiya Rahul Ashvinbhai	
36	210621036	Raja Nirali Hitenbhai	
37	210621037	Rangwala Hunaid Hasnainbhai	
38	210621038	Ranipa Brindaben Ravjibhai	
39	210621039	Riya Bera	
40	210621040	Selarka Darshit Jayantilal	
41	210621041	Sherathiya Jeelkumar Sanjaybhai	
42	210621042	Srusti Kaushik Bharadiya	
43	210621043	Sudani Nency Vimalkumar	
44	210621044	Thumar Raj Ketankumar	
45	210621045	Trivedi Prayag Vireshkumar	
46	210621046	Vara Deven Milapbhai	
47	210621047	Gohel Tapan Surykantbhai	

Assignment Task-2

Presentation of Above Titles (Present)

Atmiya University Rajkot

Department of Microbiology

PGDMLT
Semester-1

Academic Year 2022-23

Assignment-1

Submission Date: 27 September, 2022

Resource: Library, E-Resources, Class note

Assignment Task-1

Que. No.	Assignment Topics
1.	Define Tissue and write the name with origin function.
2.	Write a note on Epithelial tissue according to its origin.
3.	Draw lebelled diagram of tubular secretary tissue.
4.	Write a note on Squamous Epithelium tissues.

Assignment Task-2 – 30-9-2022

Que. No.	Assignment Topics
1.	Write a note on effect of age on the musculoskeleton system.
2.	Describe in details: Connective tissue, bone & cartilage with example.

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Department of Biotechnology

B.Sc.
Biotechnology
Semester-3

Academic Year 2022-23

Physiology - Assignment 1

Submission Date: 5 August, 2022

Resource: Library, E-Resources, Class note

Assignment Task-1

Que. No.	Assignment Topics
1.	Prepare notes on the given topics and submit it.

Atmiya University Rajkot

S.No.	Topic	**Enroll. No.**	**Name of Students**
1	Structure of the Eye	210601001	Darshan Akbari
2	Mechanism of Vision	210601028	Mer Rutvi Pradipbhai
3	Structure of Auditory Apparatus – external, middle and internal ears	210601029	Kachhadiya Utsav Pareshbhai
4	Function of auditory apparatus – external, middle and internal ears	210601026	Meena kushwaha
5	Mechanism of hearing	210601005	chhaya jasmin s.
6	Regulation of body temperature in homeotherms	210601036	Raninga Brizal
7	Structure OF HEART and Function of Heart	21,06,01,004	Chavda Uditaben Kanabhai
8	Structure OF HEART and Function of Heart	210601044	Naliyapara Dhruvisha
9	Structure OF HEART and Function of Heart	210601020	Monpara Shruti V
10	Cardiac cycle	210601016	Galani jensi Sureshkumar
11	Overview of electrocardiography	210601033	Shristi Prasad
12	Mechanism of urine formation	210601021	Kamani Hemanshi NileshBhai
13	Mechanism of urine formation	210601008	Dadhaniya Margee Ratilal
14	Mechanism of muscle contraction and relaxation	210601039	Tajpara Riya SubhashBhai
15	Regulation of Osmolarity in Human	210601024	Khunt manan
16	Neurotransmitters	21,06,01,007	Drashti chovatiya
17	Propagation of nerve impulse	210601047	Dhruvi Sojitra
18	Structure of Skeletal, Smooth Cardiac Muscles	210601048	Korat Leeza Vijaybhai
19	The neuromuscular junction and Synapse: Structure transmission	210601017	Golani nency
20	Mechanism of muscle contraction and relaxation	210601019	Bhavya Joshi
21	Water potential	210601041	Keval Vasani
22	Mechanism of water transport	210601042	Mansara hasti jigneshbhai
23	Factor influence water loss, guttation	210601022	KANJIYA BHARGAV
24	Transpiration(mechanism of opening & closing)	210601011	Preksha Dave

25	Macro nutrients: Roles and deficiency	210601015	Soham Gadhvi
26	Micro nutrients: Roles and deficiency	210601023	Harsh Kansagra
27	Mechanism of uptake of nutrients	210601014	Khushi Gadhavi
28	Mechanism of food transport	210601030	Ritu Nagdev
29	Photosynthesis- pigments	210601025	Yashvi Kotadia
30	Photo systems and rules(Blackman and Emerson effect)	210601018	Hardi Changani
31	Photphosphorylation	210601010	dalsaniya prince
32	Dark reaction- Calvin cycle	210601040	Vagadiya Bhavya amitBhai
33	Photorespiration	210601038	Shekhada Het
34	CAM plants	210601006	chovatiya bansi
35	Seed dormancy and Seed germination	210601012	Bhanderi Dhruvisha
36	Photoperiodism	210601037	Sardhara Avni Amrutbhai
37	Vernalization	210601013	Dodiya Yashrajsinh

ATMIYA UNIVERSITY
(Established under the Gujarat Private University Act 11, 2018)
Yogidham Gurukul, Kalawad Road, Rajkot - 360005, Gujarat (INDIA)

Department of Biotechnology

B.Sc.
Biotechnology
Semester-3

Academic Year 2022-23

Recombinant DNA Technology - Assignment 2

Submission Date: 5 September , 2022

Resource: Library, E-Resources, Class note

Assignment Task-2

Que. No.	Assignment Topics
1.	Prepare a question bank for the below-mentioned topics in course. Course: Physiology

S.No.	Topic	**Enroll. No.**	**Name of Students**
1	Structure of the Eye	210601001	Darshan Akbari
2	Mechanism of Vision	210601028	Mer Rutvi Pradipbhai
3	Structure of Auditory Apparatus – external, middle and internal ears	210601029	Kachhadiya Utsav Pareshbhai
4	Function of auditory apparatus – external, middle and internal ears	210601026	Meena kushwaha
5	Mechanism of hearing	210601005	chhaya jasmin s.
6	Regulation of body temperature in homeotherms	210601036	Raninga Brizal
7	Structure OF HEART and Function of Heart	210601004	Chavda Uditaben Kanabhai
8	Structure OF HEART and Function of Heart	210601044	Naliyapara Dhruvisha
9	Structure OF HEART and Function of Heart	210601020	Monpara Shruti V
10	Cardiac cycle	210601016	Galani jensi Sureshkumar
11	Overview of electrocardiography	210601033	Shristi Prasad
12	Mechanism of urine formation	210601021	Kamani Hemanshi NileshBhai
13	Mechanism of urine formation	210601008	Dadhaniya Margee Ratilal
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15	Regulation of Osmolarity in Human	210601024	Khunt manan
16	Neurotransmitters	21,06,01,007	Drashti chovatiya
17	Propagation of nerve impulse	210601047	Dhruvi Sojitra
18	Structure of Skeletal, Smooth Cardiac Muscles	210601048	Korat Leeza Vijaybhai
19	The neuromuscular junction and Synapse: Structure transmission	210601017	Gohani nency
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21	Water potential	210601041	Keval Vasani

22	Mechanism of water transport	210601042	Mansara hasti jigneshbhai
23	Factor influence water loss, guttation	210601022	KANJIYA BHARGAV
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27	Mechanism of uptake of nutrients	210601014	Khushi Gadhavi
28	Mechanism of food transport	210601030	Ritu Nagdev
29	Photosynthesis- pigments	210601025	Yashvi Kotadia
30	Photo systems and rules(Blackman and Emerson effect)	210601018	Hardi Changani
31	Photphosphorylation	210601010	dalsaniya prince
32	Dark reaction- Calvin cycle	210601040	Vagadiya Bhavya amitBhai
33	Photorespiration	210601038	Shekhada Het
34	CAM plants	210601006	chovatiya bansi
35	Seed dormancy and Seed germination	210601012	Bhanderi Dhruvisha
36	Photoperiodism	210601037	Sardhara Avni Amrutbhai
37	Vernalization	210601013	Dodiya Yashrajsinh

Department of Biotechnology

B.Sc. Biotechnology
Semester-3

Academic Year 2021-22

Plant Science - Assignment-1

Submission Date: 4 October, 2021

Resource: Library, E-Resources, Class note

Assignment Task-1

Que. No.	Assignment Topics
1.	Draw labelled diagram of ovules.
2.	Write a note on microgamatogenesis with diagram.
3.	Draw only different stages of mega-gametogenesis.
4.	Define fertilization and explain in detail double fertilization with diagram.
5.	Define embryo and write note on dicot embryo with figures.

Assignment Task-2

Prepare class note for Unit - 5

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सुहृदं सर्वभूतानाम्

Department of Biotechnology

M.Sc.
Biotechnology
Semester-III

Academic Year 2021-22

Recombinant DNA Technology - Assignment 1

Submission Date: 23 August, 2021

Resource: Library, E-Resources, Class note

Assignment Task-1

Que. No.	Assignment Topics
1.	Prepare a PowerPoint presentation on the given topics and present it.
2.	**List of Topics:** RFLP Phage display NGS First Generation sequencing Probe preparation Genomic Libraries ,cDNA Library

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सुहृदं सर्वभूतानाम्

Department of Biotechnology

M.Sc.
Biotechnology
Semester-III

Academic Year 2021-22

Recombinant DNA Technology - Assignment 2

Submission Date: 30 September, 2021

Resource: Library, E-Resources, Class note

Assignment Task-2

Que. No.	Assignment Topics
1.	Solve the crossword .

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ASSIGNMENT

Construction Project Management

Assignment-1

1. Discuss the following terms.
    1) project
    2) project management
    3) bar cahrt
    4) CPM
    5) PERT
    6) LoB
    7) Balance sheet
    8) Inventory management
2. Define management and explain six major function of construction management.
3. Explain in detail: Role of construction project manager on construction project
4. Explain the necessity of construction management in detail.
5. Write short note on scope of construction management.

Assignment – 2

1. Define construction management and state objectives of construction management.
2. Discuss objectives of construction management and Explain Planning, Scheduling and Controlling as a Function of Construction Management.
3. What are the objectives of resource allocation? Explain do you mean by resource leveling? Explain step by step process for resource levelling
4. Explain meaning of cash flow analysis. Discuss purpose of cash flow analysis. Also differentiate between cash flow for contractor and cash flow for owner.
5. Explain job layout. Enlist and discuss factors to be considered for preparation of job layout

Assignment – 3

1. Write short note on " Network Updating "
2. Discuss importance of safety in construction sites
3. State and describe various causes of accidents at the construction site.
4. Define and explain

   (1) Depreciation (2) Obsolescence cost (3) Down time (4) Investment cost
5. Define and explain the following terms.

   (i) Total float (ii) Independent float (iii) Free float.

6. Explain the term depreciation and discuss any one method to determine depreciation.
7. Discuss safety measures for construction sites.

Assignment – 4

1. What is bar chart ? Explain with the help of suitable example the method of preparing a bar chart.
2. Give classification of schedules and explain each of them in detail.
3. Define (i) PERT (ii) Optimistic time (iii) Pessimistic time (iv) Most likely time (v) free float

4. Explain WBS of construction project. Discuss importance of WBS
5. Discuss the management levels
6. Discuss the factors for success of a construction organization
7. Discuss the benefit cost ratio method
8. Define different construction planning techniques.

Assignment – 5

1. Discuss importance of project scheduling
2. Discuss the importance of resource allocation
3. Discuss advance concepts in economical analysis
4. Discuss material management
5. Discuss material management functions
6. Define the inventory management
7. Define value management in construction
8. Discuss quality control and quality assurance in project

Assignment – 6

1. Difine construction safety management
2. Discuss linear programming in construction management
3. Write principles of quality management system
4. Discuss CONQUAS
5. Define graphical and simplex method
6. Discuss project performance measurement and project evaluation criteria. Define project performance attributes

Atmiya University

Department of Civil Engineering

TUTORIAL

Construction Management

Tutorial-1

1). Discuss the important points to be considered while drawing the CPM network.

Draw the network for following data:-

ACTIVITY	PREDECESSOR	Duration
A	-	5
B	-	7
C	A	6
D	B	8
E	A	4
F	B	3
G	C,D	6
H	G,F	8
I	E	7
J	H,I	2
K	J	6

2).

For a small project following data is available.

I node for activity	1	1	2	3	4	4	4	5	6	7
J node for activity	2	3	3	4	5	6	7	7	7	8
Normal Duration	10	13	4	6	0	5	9	7	3	3
Crash Duration	9	10	3	4	0	4	7	5	3	2
Normal cost	1000	780	400	320	0	250	720	420	30	300
Crash cost	1200	900	470	410	0	300	810	580	30	400

Take indirect cost as Rs. 50 per day.

Determine

(a) Normal Project duration and corresponding project cost.

(b) Optimum Project cost and corresponding project duration.

Minimum project duration and corresponding project cost.

3).

Original schedule of a small project is given below and information at the end of tenth working day is also given. Determine change in critical path and project duration by updating the network.

Original Schedule:

Activity	A	B	C	D	E	F	G	H	I
Preceding Activity	-	-	A	A	B,C	B,C	D,E	D,E	F,G
Duration	5	7	8	5	3	4	2	3	5

Information at the end of tenth working day.

- Activities A and D were completed as per schedule.
- Activity B is completed in 5 days instead of planned 7 days
- Activity C started immediately after activity A was over. And it yet requires 5 more days.
- Considering site conditions duration of activities E and F are revised to 4 days and 5 days respectively.

  Duration of activities G, H and I are unchanged.

4).

The following network shown in figure 1 has the estimated duration for each activity marked. Determine the critical path. also determine total float and free float for each activity.

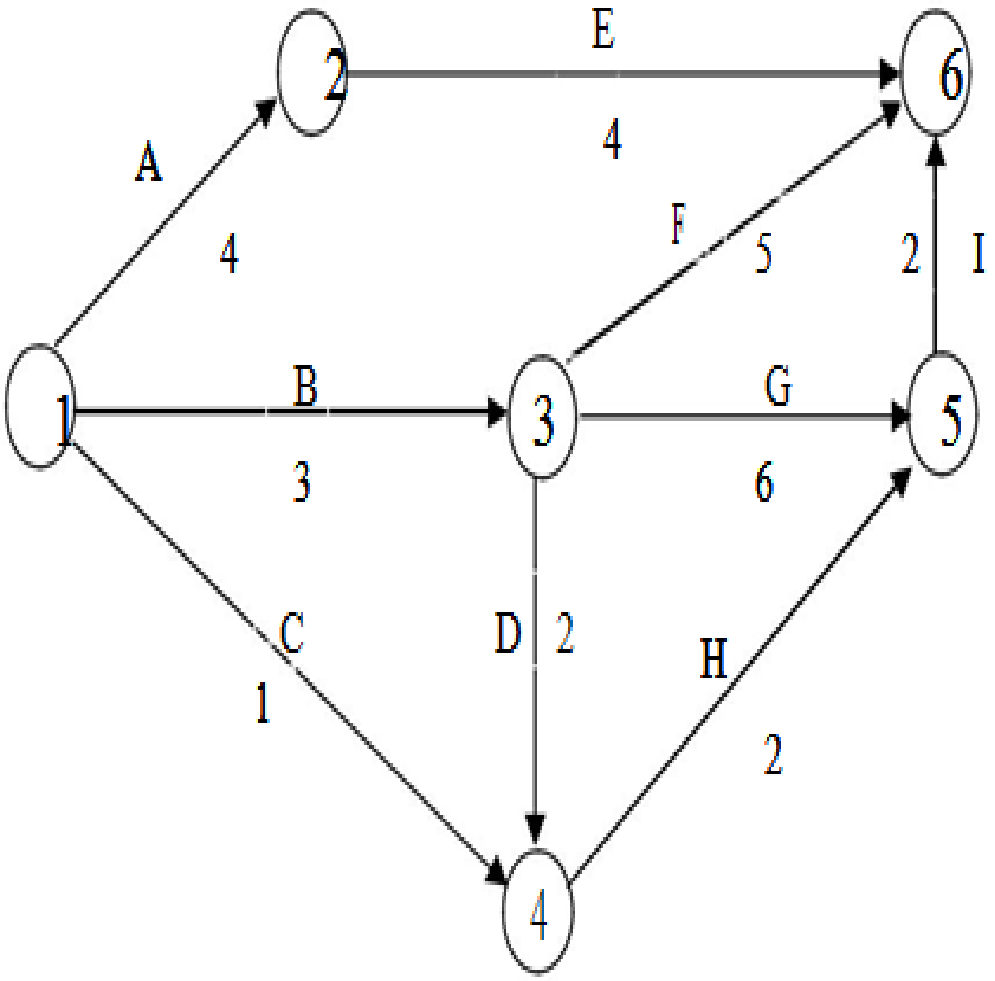


Figure 1

5).

The following table gives the Data about durations and costs of various activities of the network shown in fig.2

Activity	Normal Duration (weeks)	Normal cost (Rs.)	Crash Duration (weeks)	Crash cost (Rs.)
1-2	4	4000	2	12000
2-3	5	3000	2	7500
2-4	7	3600	5	6000
3-4	4	5000	2	10000

The project overhead costs are Rs. 3000 per week. Find the optimum duration and the cost associated with it.

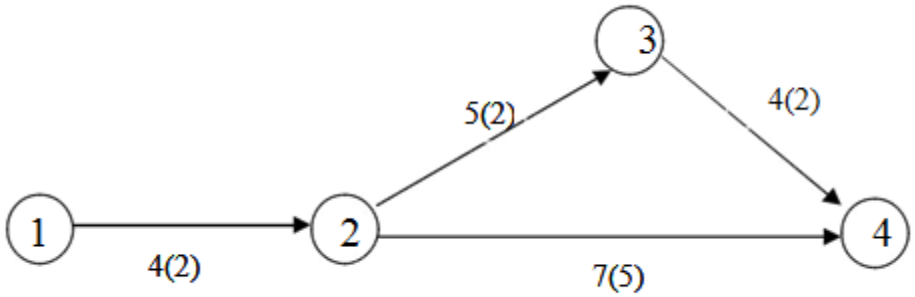
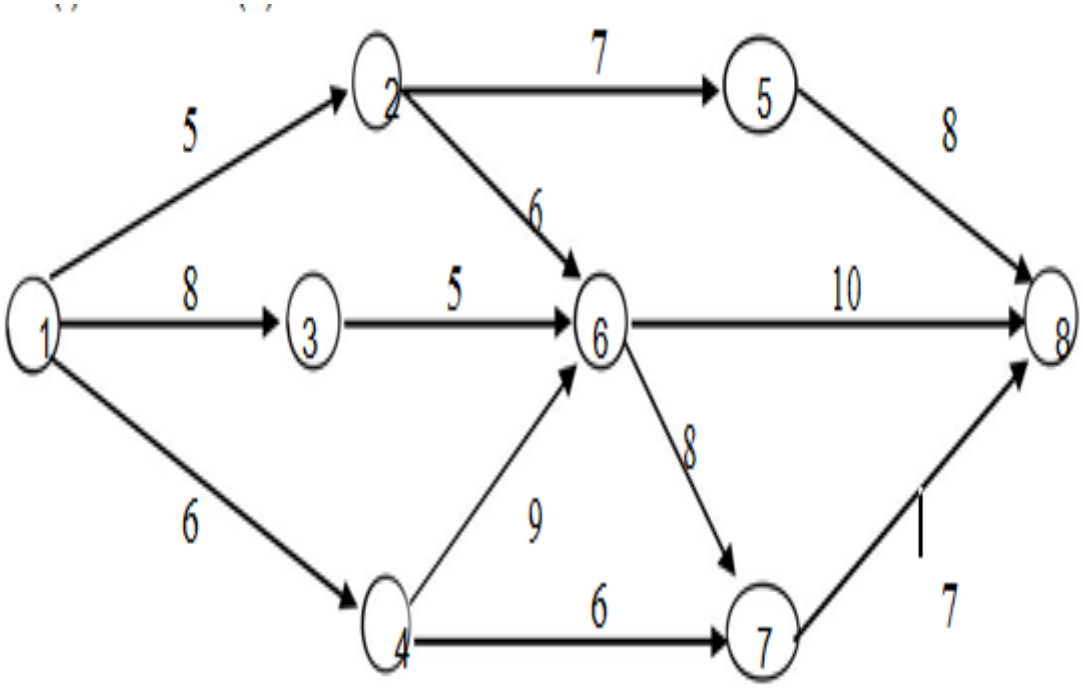


Figure 2

6).

For the network shown below find out the project completion time. Draw the time scale diagram and crash suitable activities and find out the total cost of project for completing it in (i) 27 weeks (ii) 25 weeks



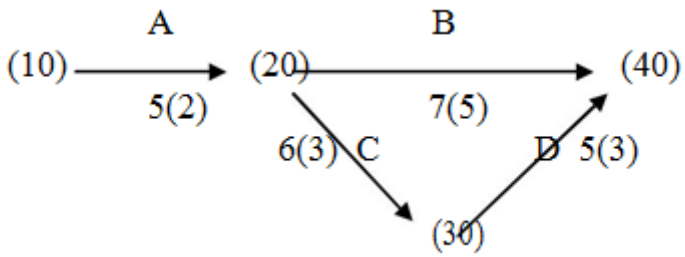
		Normal	Crash	Normal	Crash
Activity		Duration	Duration	cost	cost
	1-2	5	4	4000	10000
	1-3	8	5	5000	8000
	1-4	6	4	4000	7000
	2-5	7	5	5000	6000
	2-6	6	4	4000	8000
	3-6	5	3	3000	7000
	4-6	9	6	6000	9000

	4-7	6	4	4000	7000
	5-8	8	6	6000	8000
	6-8	10	7	7000	10000
	6-7	8	5	5000	8000
	7-8	7	5	5000	10000
Indirect cost is Rs. 3000/week					

7).

The following data shows duration and cost of various activities of the network shown in the fig.

The project overhead costs are Rs. 2000/week. Calculate the optimum duration and cost associated with it.



Activity	Normal duration (week)	Normal cost (Rs.)	Crash duration (week)	Crash cost (Rs.)
10 – 20	5	5000	3	10000
20 – 30	6	3000	3	7000
20 – 40	7	4000	5	6000
30 – 40	5	3500	3	9000

8).

The following network shown in figure 1 has the estimated duration for each activity marked. Determine the critical path. Also determine total float and free Float for each activity.

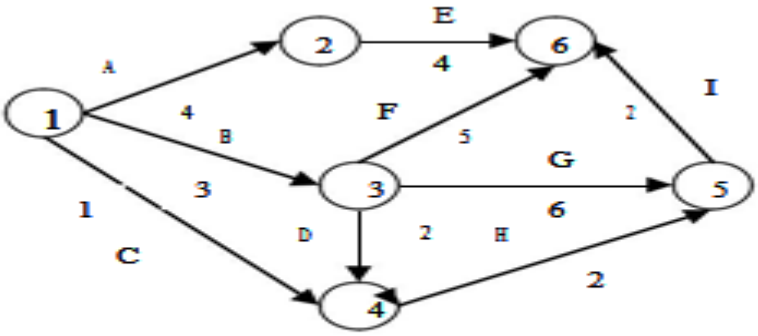


Figure 1

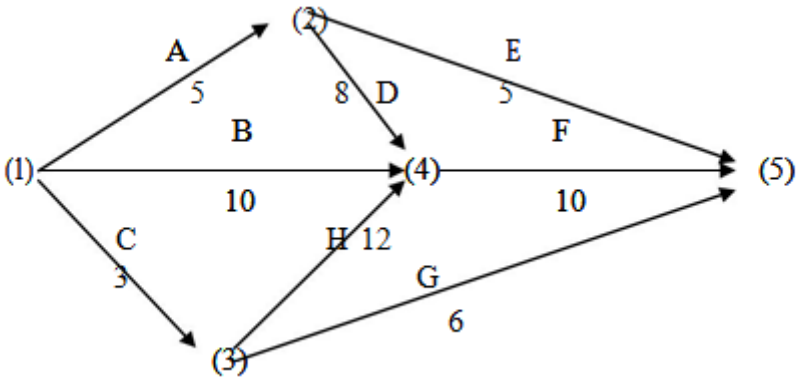
9).

A construction project consists of 12 activities. The predecessor relationships are identified by their node numbers as indicated below. Draw the network diagram.

ACTIVITY	IDENTITY	ACTIVITY	IDENTITY	ACTIVITY	IDENTITY	ACTIVITY	IDENTITY
A	(1,2)	D	(2,7)	G	(4,6)	J	(7,8)
B	(2,4)	E	(3,4)	H	(5,6)	K	(6,8)
C	(2,3)	F	(3,5)	I	(5,7)	L	(8,9)

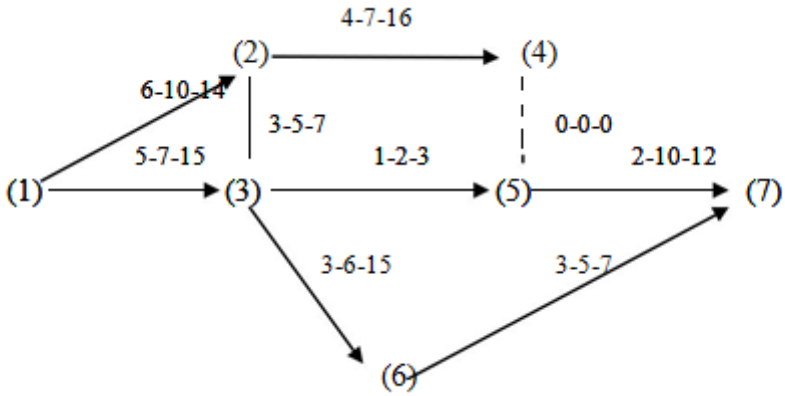
10).

For the network shown in the fig. find out critical path and determine free float and total float for each activity.



11).

The network for a project is shown in fig. below. Calculate the expected time for each path. Which path is critical? Draw the network showing expect time.



12).

Determine optimum cost and corresponding project duration for the given data.

Activity	Normal time	Normal cost	Crash time	Crash cost
1-2	3	12000	2	16000
1-3	6	18000	3	24000
2-4	2	20000	1	23000
3-4	4	16000	2	21000
4-5	5	30000	4	35000
Indirect cost = Rs. 3000/day.				

Department of Biotechnology

B.Sc. Biotechnology
Semester-3

Academic Year 2019-2020

Plant Science - Assignment-1

Submission Date: 31 July, 2019

Resource: Library, E-Resources, Class note

Assignment Task-1

Que. No.	Assignment Topics
1.	Define Meristem and the write down classification of Meristem.
2.	Make chart of Permanent tissues and write note on Sclerenchyma cell.
3.	Explain conducting tissues-Xylem.
4.	Draw labeled diagram *Salvadora* and *Aristolochia*.
5.	Describe Dicot stem and root with labeled diagram.

Assignment Task-2

Presentation of Above Titles (Present)

Department of Biotechnology

B.Sc. Biotechnology
Semester-3

Academic Year 2019-2020

Plant Science - Assignment-2

Submission Date: 16 September, 2019

Resource: Library, E-Resources, Class note

Assignment Task-2

Que. No.	Assignment Topics
1.	What is Photoperiodism.
2.	Explain Male Gametophyte.
3.	Development and types of Embryo.
4.	Explain Poly embryony.
5.	Explain origin & Evolution of land plants.

ATMIYA UNIVERSITY

Faculty of Engineering and Technology
School of Engineering
B.TECH SEM I ASSIGNMENT-I

SUBJECT (SUBJECT CODE) : ELEMENTS OF CIVIL ENGINEERING

DATE: 06/03/2019

UNIT I: (Introduction and Scope of Civil Engineering)

Q.1 Discuss the impact of infrastructural development on the economy of a country.

Q.2 Explain the role of civil engineer in infrastructural development of the country.

Q.3 Enlist brief overview of road infrastructure in India and discuss its implication in National Development.

Q.4 what is the role of civil engineer in society?

Q.5 The infrastructural sector covers a wide range of service of _____ (a) Transportation, (b) Water Resources Project, (c) Power sector, (d) All above

Q.6 Enlist the various branches of Civil Engineering.

Q.7 The scope of Civil Engineering is (a) Planning, designing and estimating (b) Supervision of construction (c) Maintenance of work (d) All the above

Q.8 To carry out detail soil investigation is the role of a civil engineer? a. Yes b. No

UNIT II: (BUILDING MATERIAL)

Q.1 Explain the loads which are to be taken into account while designing the foundations of a structure

Q.2 Classify the buildings based upon occupancy and structure

Q.3 Discuss various construction materials used in civil engineering.

Q.4 Write short note on Mortar and concrete

Q.5 Enlist the types of cement. Explain any two in detail.

Q.6 Explain the types of building based upon its occupancy.

Q.7 The size of modular brick is (a) 20 x 10 x 10 cm (b) 19 x 9 x 9 cm (c) 20 x 10 x 5 cm (d) None of these

Q.8 Enumerate the qualities of good brick.

Q.9 Explain with neat sketch the various terminologies related to staircase

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Q.10 which of the following statement is correct (A) Alumina imparts red color to the brick (B) C2S is responsible for early strength of cement (C) Seasoning of timber decreases workability (D) Woods with distinct annular rings are conifers

Q.11 The load which does not change over time is called (A) Wind load (B) Dead load (C) Snow load (D) Earthquake load

Q.12 How mortar is different from concrete? Enlist the qualities of good brick.

Q.13 Discuss the various types of loads acting on a building.

Q.14 The percentage of alumina in good brick earth lies between (a) 10 – 20% (b) 20 – 30% (c) 30 – 40% (d) 40 – 50% 4.

Q.15 An independent footing of two columns are connected by a beam is called (a) spread footing (b) strap footing (c) combined footing (d) Mat foundation

Q.16 Classify building based on occupancy as per National Building Code of India.

Q.17 Marble is a form of _____. (a) Igneous, (b) Sedimentary, (c) Metamorphic, (d) None of above

Q.18 If the depth of foundation is equal to or less than its width is known as _____. (a) Deep foundation, (b) Shallow foundation, (c) Combined foundation, (d) None of above

Q.19 Enlist the material used in construction. Explain the requirement and properties of concrete.

Q.20 Explain in brief different types of cement.

Q.21 Main ingredient in the cement composition is (a) Silica (b) Lime (c) Clay (d) Alumina

Q.22 Draw the neat sketch for the following: Spread footing foundation for the 20 cm wall

Q.23 Draw the neat sketch for the following: RCC lintel with Chajja

Q.24 Differentiate between load bearing structure and framed structure.

Q.25 Property of fresh concrete is (A) Workability (B) Segregation (C) Bleeding (D) All of these

Q.26 1st Class brick immersed in water for 24 hours, should not absorb water (by weight) more than (A) 10% (B) 20% (C) 15% (D) 25%

Q.27 which is the part of substructure out of the following (A) Plinth (B) Foundation (C) DPC (D) Walls

Q.28 for under water construction which lime is used?

ATMIYA UNIVERSITY

Faculty of Engineering and Technology
School of Engineering
B.TECH SEM I ASSIGNMENT-II

SUBJECT (SUBJECT CODE) : ELEMENTS OF CIVIL ENGINEERING (18BTCEDA102, 18BTITDA102, 18BTEEDA102)

DATE: 29/11/2018

UNIT IV: TRANSPORTATION ENGINEERING

QUE: 01 Explain the role of transportation in national development.

QUE: 02 What are the various modes of transportation? Discuss them briefly.

QUE: 03 Explain the classification of road by Nagpur Road Plan.

QUE: 04 Explain various cross section of roads with neat sketch.

QUE: 05 List out and Explain various geometric cross sectional elements of a road.

QUE: 06 Explain components of railway track with neat sketch.

QUE: 07 Explain cross sections of railway with neat sketch.

QUE: 08 List out and explain various components part of a aircraft.

UNIT V: INTRODUCTION TO WATER RESOURCES MANAGEMENT

QUE: 01 Explain "Hydrological cycle" with neat sketch.

QUE: 02 Explain Uses of Water.

QUE: 03 Explain Water Conservation Measures.

QUE: 04 What do you understand the term Hydraulic Structures? Explain Gravity dam with sketch.

QUE:05 List out Rainwater Harvesting Techniques and Explain Roof Top Harvesting in detail with sketch.

QUE: 06 Explain Weir, Barrages and Check Dam in detail with sketch.

Atmiya University Rajkot

ATMIYA UNIVERSITY

CIVIL ENGINEERING DEPARTMENT

BUILDING PLANNING AND REGULATION ASSIGNMENT

1.Classification of buildings.

2.Draw the components of a building. (Two-story).

3.Orientation criteria for Indian conditions.

4.Principles of building planning.

5.Principles of Architecture composition

6.What is the Building bye laws. Explain objectives, Scope & Applicability.

7.Define terms:

Control Line, Building Line, Plinth Area, Set Back, and Built up Area, Carpet Area, FSI, Basement, Light Plane, mezzanine floor, dwelling house, dwelling unit, loft, gametal

8.Enlist criteria for the selection of site for various type of public Building.

9.Briefly explain classification of perspective views.

10.Explain Difference between Isometric view and Perspective view and also explain typical characteristics of perspective drawings.

11.Define terms.

Station point, Picture plan, Line of Sight, Horizontal Plane, Horizontal Line, Ground Plan, and Vanishing Point, angle of vision, ground line, centre of vision, eye level

12. Define town planning. Briefly explain principle of town planning. Objective of town planning.

13. Types of growth of towns.

14. Necessity of civic surveys for planning purpose & explain collection of data.

15. Discuss various surveys conducted for town planning scheme.

16. Enlist method adopted to collect data.

17. Define zoning. Explain the objective and importance of zoning and also explain classification of zoning.

18. Enlist and draw different urban patterns.

19. Explain classification of urban road adopted in city planning.

20. State objective & requirement of “master plan”.

21. Write short note on central business district and town planning scheme.

22. State the principles of neighbourhood planning. Explain the importance of neighbourhood planning?

23. Briefly explain the town planning scheme.

24. Describe the important remedial measures to prevent slum formation.

25. Define slum. Explain Causes of slums?

26. Discuss slums clearance and its methods.

27. what is prospective drawing? and explain about it

28. draw a two-point prospective drawing for any 10'X10' room with height 9'.

ATMIYA UNIVERSITY

CIVIL ENGINEERING DEPARTMENT SEM-5TH

ASSIGNMENT – REPAIR & REHABILITATION OF STRUCTURE

1) What is repair & Rehabilitation? Explain in brief.

2) Write a short note on retrofitting & strengthening.

3) What are the needs for rehabilitation for a Structure?

4) Explain Various cracks occurs in Buildings.

5) Explain the reasons for Causes of cracks in building

6) what is non-destructive testes & Enlist Various. NDT Test names.

7) Write Short note on a rebound hammer with a Sketch.

8) Explain ultrasonic plus velocity test.

9) write short note on

Rebar locater

Corrosion meter

Pull out test

10) Explain various methods for Corrosion measurement & assessment.

11) write Explain various criteria for material Selection

12) Explain Various type of repair material

13) Explain in brief about health and Safety. Safety precaution for handling & application. of repair materials.

14) write a short note on.

Polymer Concrete. and mortar

Quick Setting Compounds.

15) What is grouting? and Explain Various types of grouting methods.

16) What is bonding agent? Explain in detail.

17) write a short note a protective coating.

18) write a short note an FRP Sheets.

19) Write about Corrosion damage of reinforcement Concrete and explain various method of Corrosion protections.

20) Write a Short note

Corrosion Inhibiters.

Corrosion resistance Steel

Catholic protection

Rust eliminators.

21) what is efflorescence? explain in brief.

22) Write causes and preventive measures for embedded steel and set concrete.

23) what is strengthening of a structure and which are the criteria's for the same?

24) explain about beam jacketing and column jacketing.

25) write about demolition of structure using engineered and non-engineered

26) what are the uses of non-destructive testing techniques for evaluation

27) explain the repairs methodology to overcome low member strength, deflection, cracking, weathering, fire, leakage, marine exposer

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B.TECH SEM I ASSIGNMENT-I

SUBJECT (SUBJECT CODE) : ELEMENTS OF CIVIL ENGINEERING

DATE: 06/03/2019

UNIT I: (Introduction and Scope of Civil Engineering)

Q.1 Discuss the impact of infrastructural development on the economy of a country.

Q.2 Explain the role of civil engineer in infrastructural development of the country.

Q.3 Enlist brief overview of road infrastructure in India and discuss its implication in National Development.

Q.4 what is the role of civil engineer in society?

Q.5 The infrastructural sector covers a wide range of service of _____ (a) Transportation, (b) Water Resources Project, (c) Power sector, (d) All above

Q.6 Enlist the various branches of Civil Engineering.

Q.7 The scope of Civil Engineering is (a) Planning, designing and estimating (b) Supervision of construction (c) Maintenance of work (d) All the above

Q.8 To carry out detail soil investigation is the role of a civil engineer? a. Yes b. No

UNIT II: (BUILDING MATERIAL)

Q.1 Explain the loads which are to be taken into account while designing the foundations of a structure

Q.2 Classify the buildings based upon occupancy and structure

Q.3 Discuss various construction materials used in civil engineering.

Q.4 Write short note on Mortar and concrete

Q.5 Enlist the types of cement. Explain any two in detail.

Q.6 Explain the types of building based upon its occupancy.

Q.7 The size of modular brick is (a) 20 x 10 x 10 cm (b) 19 x 9 x 9 cm (c) 20 x 10 x 5 cm (d) None of these

Q.8 Enumerate the qualities of good brick.

Q.9 Explain with neat sketch the various terminologies related to staircase

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Q.10 which of the following statement is correct (A) Alumina imparts red color to the brick (B) C2S is responsible for early strength of cement (C) Seasoning of timber decreases workability (D) Woods with distinct annular rings are conifers

Q.11 The load which does not change over time is called (A) Wind load (B) Dead load (C) Snow load (D) Earthquake load

Q.12 How mortar is different from concrete? Enlist the qualities of good brick.

Q.13 Discuss the various types of loads acting on a building.

Q.14 The percentage of alumina in good brick earth lies between (a) 10 – 20% (b) 20 – 30% (c) 30 – 40% (d) 40 – 50% 4.

Q.15 An independent footing of two columns are connected by a beam is called (a) spread footing (b) strap footing (c) combined footing (d) Mat foundation

Q.16 Classify building based on occupancy as per National Building Code of India.

Q.17 Marble is a form of _____. (a) Igneous, (b) Sedimentary, (c) Metamorphic, (d) None of above

Q.18 If the depth of foundation is equal to or less than its width is known as _____. (a) Deep foundation, (b) Shallow foundation, (c) Combined foundation, (d) None of above

Q.19 Enlist the material used in construction. Explain the requirement and properties of concrete.

Q.20 Explain in brief different types of cement.

Q.21 Main ingredient in the cement composition is (a) Silica (b) Lime (c) Clay (d) Alumina

Q.22 Draw the neat sketch for the following: Spread footing foundation for the 20 cm wall

Q.23 Draw the neat sketch for the following: RCC lintel with Chajja

Q.24 Differentiate between load bearing structure and framed structure.

Q.25 Property of fresh concrete is (A) Workability (B) Segregation (C) Bleeding (D) All of these

Q.26 1st Class brick immersed in water for 24 hours, should not absorb water (by weight) more than (A) 10% (B) 20% (C) 15% (D) 25%

Q.27 which is the part of substructure out of the following (A) Plinth (B) Foundation (C) DPC (D) Walls

Q.28 for under water construction which lime is used?

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B.TECH SEM I ASSIGNMENT-II

SUBJECT (SUBJECT CODE) : ELEMENTS OF CIVIL ENGINEERING (18BTCEDA102, 18BTITDA102, 18BTEEDA102)

DATE: 29/11/2018

UNIT IV: TRANSPORTATION ENGINEERING

QUE: 01 Explain the role of transportation in national development.

QUE: 02 What are the various modes of transportation? Discuss them briefly.

QUE: 03 Explain the classification of road by Nagpur Road Plan.

QUE: 04 Explain various cross section of roads with neat sketch.

QUE: 05 List out and Explain various geometric cross sectional elements of a road.

QUE: 06 Explain components of railway track with neat sketch.

QUE: 07 Explain cross sections of railway with neat sketch.

QUE: 08 List out and explain various components part of a aircraft.

UNIT V: INTRODUCTION TO WATER RESOURCES MANAGEMENT

QUE: 01 Explain "Hydrological cycle" with neat sketch.

QUE: 02 Explain Uses of Water.

QUE: 03 Explain Water Conservation Measures.

QUE: 04 What do you understand the term Hydraulic Structures? Explain Gravity dam with sketch.

QUE:05 List out Rainwater Harvesting Techniques and Explain Roof Top Harvesting in detail with sketch.

QUE: 06 Explain Weir, Barrages and Check Dam in detail with sketch.

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