Government College of Engineering, Amravati
(An Autonomous Institute of Government of Maharashtra)

First Year B. Tech. (All Branches)

Winter – 2016

Course Code: SHU104 **Course Name: Life systems**

Time: 2 Hrs. **Max. Marks: 30**

Instructions to Candidate

1) All questions are compulsory.
2) Assume suitable data wherever necessary and clearly state the assumptions made.
3) Diagrams/sketches should be given wherever necessary.
4) Figures to the right indicate full marks.
5) Illustrate your answer with well labeled diagrams and examples wherever necessary.

1	a)	What are the characteristic features of prokaryotic cell? Draw a well labeled diagram of prokaryotic cell.	3
		OR	
	a)	Write a short note on artificial teeth.	3
	b)	Write a comment on active transport	3
	c)	Discuss in detail Watson and Crick model of DNA.	4
2	a)	Principal and working of Electrophoresis.	3
	b)	Explain in detail structure of spider silk.	3

Contd..

OR

b) Give structure and function of chloroplast 3

c) What is mutation? Discuss in detail types of mutation 4

3 a) Write a short note on application of tissue culture 3

b) Explain the structure of human eye. Add a note on artificial eye. 3

c) What is vector? Explain properties of good vector. 4

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Government College of Engineering, Amravati
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First Semester B. Tech. (All Branches)

Summer Term – 2017

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1.	a)	Write on principle and working of electrophoresis.	**3**
	b)	Describe the biomolecular transport in tissue.	**3**
	c)	What is Eukaryotic cell? Describe structure of any one cell organelle.	**4**

OR

	c)	Give in detail structure of protein with special comment on Φ and Ψ bonds involved in it.	**4**
2.	a)	Explain molecular structure of collagen.	**3**
	b)	What is stem cell? Comment on embryonic and	**3**

OR

b) Give structure and function of chloroplast

c) What is mutation? Discuss in detail types of mutation 4

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Government College of Engineering, Amravati

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First Semester B. Tech. (All branches)

Winter – 2012

Course Code: SHU104

Course Name: Living Systems

Time: 2 Hrs. **Max. Marks: 30**

Instructions to Candidate

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3). Diagrams/sketches should be given wherever necessary.
4) Figures to the right indicate full marks.

1.	**a)**	What is Eukaryotic cell? Draw well labeled diagram of Eukaryotic cell.	3
	b)	What is carbohydrate metabolism. Add a note on mechanism of glycolysis.	4
	c)	Explain the structure and function of mitochondria with labeled diagram.	3
		OR	
	d)	What is blood pressure? Mention the types of blood pressure.	3
2.	**a)**	Describe the various parts of human eye with labeled diagram.	4
	b)	What is reflex action? Explain the mechanism of reflex action.	3
	c)	Write a note on function of Endoplasmic	3

reticulum.

3. a) What is Gibbs free energy? Add a note on enthalpy and entropy. 4

OR

b) What is protein? Explain different structure of protein. 4

c) Explain the structure of DNA. 4

d) Explain Fluidmozaic model of plasma membrane. 2

OR

e) Draw well labeled diagram of excretory system of man. 2

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L.S.

Government College of Engineering, Amravati

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First Year B. Tech.

Winter - 2015

Course Code :SHU 104 **Course Name - LIVING SYSTEMS**

Time : 2 hr.. **Max. Marks : 30**

Instructions to Candidate

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3)Diagrams/sketches should be given wherever necessary.
5)Figures to the right indicate full marks.
6)(Other special instruction, if any)

Q.1.	(a)	What is prokaryotic cell? Explain Bacterial Cell Structure.	4
	(b)	Explain proteins with it's discovery and functions.	3
	(c)	What are carbohydrates ? Explain it's types and discovery.	3
		OR	
		State the differences between Prokaryotic and Eukaryotic cell.	
Q.2.	(a)	Explain the Double Helix model of DNA with nitrogen bases.	4
	(b)	Explain Teeth in detail with it's types.	3

(1) 2015

(c) Explain the structure of Ear with hearing test and hearing mechanism. 3

Q.3. (a) Explain the structure of Eye with it's well labeled diagram. 4

(b) What is mutation ? Explain it's types. 3

OR

Explain laboratory setting for tissue culture & state it's applications.

(c) Explain the concept of micro and macro nutrients. 3

(2) 2015