BITS, Pilani – Dubai

1st Semester 2009 – 2010

3rd Year Biotechnology Comprehensive Examination (Close book)

Cell Physiology (BIOT C331)

Date: 27/12/2009 Duration: 3 hours Weightage:40(Max Marks 80)

Instructions: Answer to the point All parts of the questions have to answered together

1) Explain the endosymbiotic theory which envisage the origin of eukaryotic cells (6)

2) Describe the structure and functions of membrane proteins (6)

3) Explain the oxidative metabolism in the mitochondrion (9)

4) What is the cell cycle? What are the stages of cell cycle? How does the cell cycle vary among different types of cells? (6)

5) Write an account on Lysosomal storage disorders (4)

6) Name the first glands which interact with the GI system. Mention their functions and composition (5)

7) **Write an account on the following:** (10 x 2 = 20)

a) Glottis
b) Pons varoli
c) Meninges
d) Islets of Langerhans
e) Epididymis
f) Endocytosis
g) Metastasis
h) Cell plate
i) Useful substances present in glomerular filtrate
j) Spirogram

8) Mention the hormones produced by the human male and female gonads and write a note on their actions? (6)

9) Explain the mechanism of blood clotting (6)

10) Enumerate retino motor responses in human being (3)

11) Write short note on the following Pathophysiological conditions (3 x 3 = 9)

a) Amnésia
b) Pellagra
c) Quadriplegia

: All the best:

BITS, Pilani – Dubai
1st Semester 2009 – 2010

Third Year Biotechnology **Cell Physiology (BIOT C331)** **Test – 2 (Open book)**

Date: 10/12/09 (Th/2) Duration: 50 minutes Weightage: 20 (Max Marks 20)

Instructions: **Only prescribed text book & original hand written notes are allowed.**
Answer to the point
All parts of the questions have to answered together

1) What could be reason for the cells not to be bigger in size? (3 marks)

2) If you were to disagree that viruses are living organisms, what features of viral structure and function might you envisage in your disagreement. (3 marks)

3) How do the following measurements are referred to: (2 marks)

a) 1/one ten billionth of a metre

b) 1/ millionth of a metre

c) 1/ billionth of a metre

d) $1/10^{th}$ of nm

4) Why is Krebs cycle considered to be the central pathway in the energy metabolism of a cell?

(3 marks)

5) How do the metabolic activities vary in a weight lifter and a sprinter? (3 marks)

6) How do we measure the free energy released when electrons are transferred from donor to acceptor? (2 marks)

7) What is the role of membranous glycoprotein in determining the blood typing in human being?

(2 marks)

8) Keep the freshly sliced cucumber pieces in two saucers. Sprinkle little salt in one and leave the other untouched. What will you observe after 10 minutes? Write a brief account of your observation. (2 marks)

"All the best"

BITS, Pilani – Dubai
1st Semester 2009 – 2010

Third Year Biotechnology **Cell Physiology (BIOT C331)** **Test – 1 (Close book)**

Date: 18/10/09 (Su/2) Duration: 50 minutes Weightage: 25 (Max Marks 50)

Instructions: Answer to the point
All parts of the questions have to answered together

1) Myopia is "nearsightedness" and Hyperopia is "farsightedness"- what is Emmetropia? (2)

2) What made the people to realize the significance of adding the iodized salt in their daily diet? (3)

3) Name the hormones secreted by neurohypophysis and their major actions (4)

4) Explain the mechanism of "sliding filament theory". (8)

5) What is the advantage of transportation of hormones in protein bound form? (2)

6) Name only the Afferent Cranial Nerves and their innervating organs. (3)

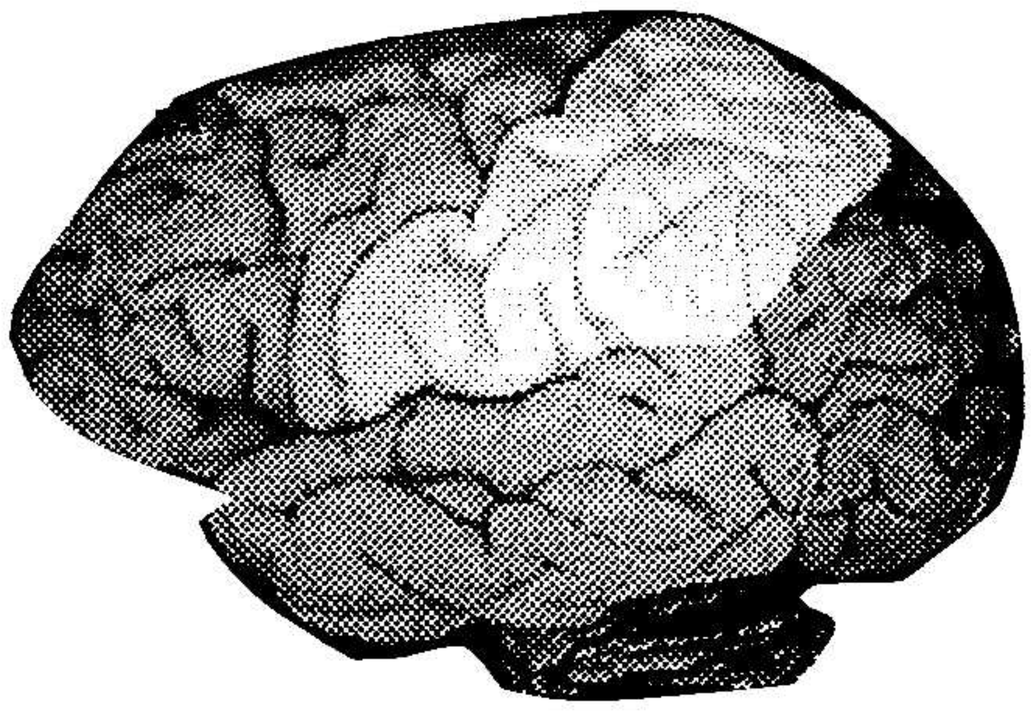
7) **Write an account on the following:** (6 x 3 = 18)

a) Eustachian tube
b) Optic disc
c) P T H
d) Meninges
e) Myasthenia gravis
f) Neurotransmitters

8) **Mention two Differences between the following:** (2 x 3 = 6)

g. Pivotal & hinge joints
h. Testosterone & progesterone
i. Thoracico- lumbar & Cranio-sacral out flows

9) Identify the lobes of the brain responsible for soma-aesthetic / reasoning / visual / olfactory functions. (4)



"All the Best"

BITS, PILANI – DUBAI
FIRST SEMESTER 2009 – 2010

Course Code: BIOT C336 FIRST YEAR Date: 29.09.09
Course Title: Cell Physiology Max Marks: 24
Duration: 20 minutes Weightage: 8%

Name: ..... **ID No:** ..... **Sec / Prog:** .....

Instructions: Answer should be précised and to the point.

1) Write two differences between intra cellular and extra cellular fluids (2)

2) How does the musculoskeletal system fit into the homeostatic function? (2)

3) Mention the Normal values. Range, approximate short term non-lethal limits and units for the following extra cellular fluid elements mentioned in the tabular column: (4)

Sl. No	Elements in the extra cellular fluid	Normal values	Normal range	Approximate short term nonlethal limit	units
1	Oxygen				
2	Glucose				
3	Body temperature				
4	Chloride ion				

4) Give an example of the negative feed back (1)

5) How do the gases enter in the gastrointestinal tract? (2)

6) Where are the salivary glands located in human being? (1.5)

7) Write the three major functions of liver. (1.5)

PTO

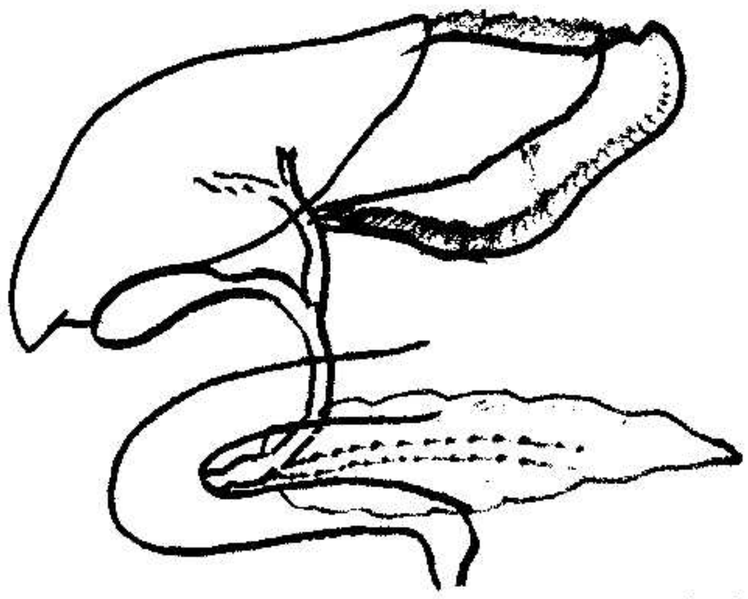
8) Write the difference between mastication and deglutition. (2)

9) What is the role of rennin in digestion? (2)

10) How does stomach plays an important role in defensive mechanism? (1)

11) Pancreas is both exocrine and endocrine in function – justify (2)

12) Identify and label the cystic duct in the following diagram (1)



13) Write the difference between xerostomia and sialorrhoea (2)

TOTAL MARKS OBTAINED :
OUT OF 8 (WEIGHTAGE):

Good luck