

First Year Post Basic B.Sc Nursing Examinations-October 2014

BIOCHEMISTRY AND BIOPHYSICS

Time: 3 Hours

Total Marks: 75

- Answer all questions. Draw diagrams wherever necessary
- Write **section A** and **section B** in **separate answer books(32 pages)**.
Do not mix up questions from section A and section B.

QP CODE: **103011**

Section A - BIOCHEMISTRY

Marks: **37½**

Essay:

(10)

1. Define gluconeogenesis. Enumerate the steps in synthesis of glucose from lactate. Mention the importance of Cori's cycle. (1+7+2=10)

Short notes:

(4x5=20)

2. What is the normal level of uric acid. Mention the causes of gout.
3. Name the proteolytic enzymes of gastrointestinal tract. Mention its action.
4. How ketone bodies are synthesized in the body. Mention the causes of ketosis.
5. Narrate the effect of substrate, pH and temperature on enzyme activity.

Answer briefly:

(3x2 ½ =7 ½)

6. Name the hormones involved in water and electrolyte balance.
7. Mention the functions of ribosomes and mitochondria.
8. Name the sites of ATP synthesis in the electron transport chain.

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Section B- BIOPHYSICS

Marks: **37½**

Essay:

(10)

1. Define voltage, current and resistance. Mention its units. Describe Ohm's Law. Add a note on membrane potentials. (3+2+2+3=10)

Short notes:

(4x5=20)

2. Define simple machines. Explain the different types of simple machines.
3. Define heat. Explain the different modes of transfer of heat.
4. Mention the relationship between wavelength, frequency and energy. List the applications of light in therapy.
5. Define intracranial pressure (ICP). Mention its normal value. List the clinical features of increased intracranial pressure.

Answer briefly:

(3x2½=7½)

6. Define gravity. List any two effects of gravitational forces on human body.
7. Law of reflection.
8. List any three clinical applications of ECG recording.